

Agenda

CALS Curriculum Committee Meeting
Tuesday, January 25th, 2014, 12:00 p.m.
250 Agricultural Hall

___ Randy Jackson, Chr (2014)

___ Jeri Barak, (2014)

___ Bill Bland, (2014)

___ Jack Kloppenburg, (2015)

___ Ahna Skop, (2016)

___ Susan Smith, (2016)

___ James Steele (2016)

___ Masarah Van Eyck, (2015)

CALS Ex Officio:

___ Sarah Pfatteicher

___ Phil Gonsiska

CASI Ex Officio:

___ Chris Day

Student Reps: ___ Matt Olson

___ Taylor Fritsch

UP&S Office:

___ Susan Gisler

___ Andrea Sottile

MINUTES

January 28, 2014 minutes

February 11, 2014 minutes

PROGRAM PROPOSAL

Geodesign Capstone Certificate

Lead: all

Capstone Certificate Program proposed by Landscape Architecture Dept. Covers applications of Global Information Systems (GIS). Program is intended for professionals with prior GIS experience.

COURSE PROPOSALS

Land Arch 630: *Introduction to Geodesign*

Lead: Jack

New Course, effective Fall 2014. One of five courses included in Land Arch's Geodesign Capstone Certificate Program. "intended for audiences interested in a broad introduction to geodesign for planning, design, sustainability, engineering, and architecture"

Land Arch 631: *Geodesign Methods*

Lead: Bill

New Course, effective Fall 2014. One of five courses included in Land Arch's Geodesign Capstone Certificate Program. Course is held online and covers methods, analytical techniques, and tools used in Geodesign

Land Arch 633: *Geospatial Approaches to Conservation and Adaptation* **Lead: Jack**

New Course, effective Spring 2015. One of five courses included in Land Arch's Geodesign Capstone Certificate Program. Course is held online and explores application of GIS related to landscape ecology, environmental analysis, and conservation design.

Land Arch 634: *Geodesign Capstone*

Lead: Ahna

New Course, effective Summer 2015. Capstone for Land Arch's Geodesign Capstone Certificate Program. Project is to resolve a " 'real world' geodesign problem".

Land Arch 671: *GIS and Geodesign for Sustainability and Resiliency* **Lead: Jim**
New Course, effective Spring 2015. One of five courses included in Land Arch's Geodesign Capstone Certificate Program. Covers history of sustainability and resiliency movements, issues in public participation GIS frame, spatial data and analysis.

Kinesiology 525: *Nutrition in Physical Activity and Health* **Lead: Masarah**
New Course, effective Summer 2014. Covers scientific knowledge and application of nutrition relative to exercise, health, and sports.

ANNOUNCEMENT

Educational Capacity Qualtrics Survey Update

**CALS Curriculum Committee Meeting
Tuesday, January 28, 2014**

Present: Jackson, Barak, Bland, Kloppenburg, Skop, Van Eyck, Gonsiska, Gisler, Sottile

Absent: Brown, Day, Fritsch, Olson, Smith, Steele

Meeting start time: 12:02pm

MINUTES

- Motion to approve minutes from Nov. 26, 2013: Skop, Bland – passed

COURSE PROPOSALS

- AAE 780 “Research Colloquium”
 - New course. Spring semester. Course for PhD students who are beyond their courses and their exam. This should be listed as a pre-requisite because it is currently not. Pre-requisite is that students submit research question and elevator spiel the fall semester prior to enrolling in Spring – is this permitted on campus? Perhaps prerequisite should be “consent of the instructor” or teach the course over two semesters.
 - Motion to approve with suggestion to reconstruct prerequisite to “consent of instructor”: Barak, Skop – passed
 - Discussion:
 - What is the legality (or not) of requiring students to do work before a class begins?
 - CALS staff to address the usage of “8” in course number
- F&WE 672 “Historical Ecology”
 - New course. 2 credit seminar. Meets once per week for 2 hours. Graduate or senior standing. Sent for outside review to Zoology and Environmental Science; consulting with Nelson Institute and Geography. Has already been taught twice as “875.”
 - Motion to approve: Bland, Van Eyck – passed
- HORT 372 “Colloquium in Organic Agriculture”
 - Course change. Seminar course meets once per week. Capstone for Horticulture. 1 credit course, but can be 2 credits if students participate in the study abroad component. Asking for L&S breadth designation (“B”).
 - Motion to approve the “B” designation: Skop, Bland – passed (should be noted we recommend it go forward to L&S for their approval to add the “B” designation.)
 - Discussion:
 - Suggest the instructor add half grades to the syllabus
- HORT 374 “Tropical Horticulture”
 - Course change. Asking for L&S breadth designation
 - Motion to approve the “B” designation: Skop, Bland – passed (same comment as above)
- Sociology proposals

- Regards Community and Environmental Sociology (CALS) and Sociology (L&S). CALS cross-lists all our courses with L&S, but L&S does not do so with CALS. Looked at all courses to decide what is introductory and what is mid-level and required so that courses are easier to navigate for students and faculty. Some course descriptions and titles have been changed as well as course prerequisites. Some of the changes will affect CALS and C&E Sociology.
- Motion to approve Sociology's proposals for course changes: Kloppenburg, Barak – passed
- Discussion:
 - L&S introductory courses are different from CALS introductory courses

ADDITIONS TO AGENDA

- Refer to hand out given by Randy Jackson via email on 1/9/14
 - Discussion:
 - Add “instructional FTE” to question 1.
 - Add “non-faculty FTE” as question 2 and include categories such as “permanent,” “ad hoc,” etc.
 - Add another question asking for average number of additional instructional FTEs (permanent, temporary, grad-based, etc.)
 - CALS may have fewer adjunct instructors than other colleges and schools on campus
 - Clarify question 3, asking if departments have an algorithm or equation. How does your department determine teaching load? How are instructional expectations for faculty in your department determined?
 - Clarify question 4: Is undergraduate advising considered part of the faculty teaching load in your department? Perhaps ask about graduate students.
 - Add question: How does your department account for, or credit, independent study, internships, etc.?
 - Add question/matrix addressing high impact learning practices and define them using language already utilized on campus, i.e. learning communities, undergrad research, collaborative work, etc. Masarah to send information to Randy.
 - Amend question 5 to include “required courses offered by your department.” Remove “courses typically used as electives” and just refer to all courses which fulfill credit requirements for a major in the department. Add “teaching assistantships” in parentheses for question 5.
 - Clarify in the introduction of the form that it is intended to give departments the opportunity to report actual data
 - Letter should be from Randy and Sarah
- Meeting adjourned 1:15pm

CALS and L&S Joint Curriculum Committee Meeting
Feb. 11, 2014

- Updates from Biology major
 - Discussing changes to the existing curriculum in order to make requirements easier from a DARS perspective, students self-advising and advisors
 - No specific proposals at this time
 - They anticipate the decision to be made during this semester, discussion with CALS in the Fall, and implementation a year from then
 - Discussion of new neuroscience (neurobiology) major in L&S
 - Discussion of adding an ecology option to the Biology major
 - Plant Science Option has UAPC approval; needs to be implemented in DARS (Gonsiska and Pfleigher to program DARS); curriculum needs to be finalized, should be available in March
- Economics certificate proposal
 - Development economics is taught within the department
 - 7 courses are currently offered in development economics
 - Proposal is for an undergraduate certificate focusing on international development economics to enable students to make the claim for taking a coherent bundle of classes
 - Do not anticipate large enrollment for the certificate (anticipate 10-15 students per year)
 - Pre-requisite: intro economics course
 - Discussion:
 - There is an overlap limit (six credits) for courses that can be used within a major towards the certificate. Who will keep track of this? An advisor
 - Priority for course enrollment would be for the students within a major
 - There are AAE required courses and requirements for courses outside of AAE for the certificate
 - Motion to recommend approval of the certificate to APC; Bland, Smith – passed
- Biocore curriculum
 - Historically has been run as an Honors program – enriched curriculum, certain GPA to get in, etc.
 - Currently half of the program's course numbers contain the middle digit "8," however, this is reserved only for Honors programs. Some of the students within Biocore are in other Honors programs, but some Biocore students are not.
 - Students would receive Honors recognition on their transcript if they earn a "B" or better in the classes and maintain at least a 3.3 GPA
 - Discussion:
 - 75-80% of students complete the program
 - If a student does not completely fulfill the requirements, the Honors designation will not be removed from their transcript (as with other Honors programs)

- Designation on student transcripts will reflect the rigorous work within the program that students have completed
- Motion to recommend approval of the proposal to APC; Smith, Van Eyck – passed

CAPSTONE CERTIFICATE PROPOSAL
Capstone Certificate in Geodesign
January 2014

1) Name and Academic Home

a) Certificate Name:

Capstone Certificate in Geodesign
(Fully Online Capstone Certificate)

b) Home Department and Academic Unit:

Landscape Architecture, College of Agricultural and Life Sciences, UW-Madison

c) Faculty Program Director:

John Harrington
Professor

Email: jaharrin@wisc.edu

Phone: 608.263.4587

Travis Flohr

Faculty Associate

Email: tflohr@wisc.edu

Phone: 608.263.7300

Program Coordinator (Primary Faculty/Staff Contact):

Douglas Hadley

Email: dbhadley@wisc.edu

Phone: 608.263.6506

d) Key Program Faculty and Degrees:

i) John Harrington, Professor, Landscape Architecture, UW-Madison (M.S.)

ii) Janet Silbernagel, Professor, Landscape Architecture, UW-Madison (M.S., Ph.D.)

iii) Travis Flohr, Professor Associate, Landscape Architecture, UW-Madison (M.S.LA,
Ph.D. Candidacy ABD intended Summer 2014)

iv) Douglas Hadley, Senior Lecturer, Landscape Architecture, UW-Madison (M.A.)

2) Intended Timeline

- a) Fall 2013
 - i) Begin Academic Approval
 - ii) Develop Marketing Strategy
- b) Spring 2014
 - i) Complete Academic Approval
 - (1) Curriculum
 - (2) Program
 - ii) Complete Marketing Strategy
 - iii) Complete Course Conversions
 - iv) Course Development for Fall 2014
 - v) Complete MOU between University of Wisconsin-Madison Landscape Architecture and University of Wisconsin-Madison Division of Continuing Studies
 - vi) Complete MOU between University of Wisconsin-Madison Landscape Architecture and University of Wisconsin-Stevens Point Department of Geography and Geology and GIS Center for Course Development and Course Instruction
 - vii) Complete Faculty Approval Process for UW-Stevens Point Faculty to Teach Assigned Courses (if they are not approved a contingency plan is in place to use UW-Madison Faculty)
 - viii) Begin Marketing upon Curriculum and Program Approval
- c) Summer 2014
 - i) Marketing and Recruiting for Fall 2014
 - ii) Complete Course Development for Fall 2014
 - iii) Begin Accepting Applications
 - iv) Begin Course Development for Spring 2015
 - v) GIS Refresher Coursework (students will be directed to existing online GIS courses offered in the Department of Geography, the Capstone Certificate in Geodesign will not offer its own refresher courses).
 - vi) Institute the Advisory Board
 - vii) Institute the Steering Committee
- d) Fall 2014
 - i) Program Launch
 - ii) First Cohort Begins Coursework
 - (1) Foundations of Geodesign (LA 630)
 - (2) Geodesign Methods (LA 631)
 - iii) Complete Course Development for Spring 2015
 - iv) Begin Course Development for Summer 2015
- e) Spring 2015
 - i) First Cohort Second Semester Coursework
 - (1) GIS and Geodesign for Sustainability and Resiliency
 - (2) Geospatial Approaches to Conservation and Adaptation

- ii) Complete Course Development for Summer 2015
- f) Summer 2015
 - i) First Cohort Third Semester Coursework
 - (1) Capstone Project
 - (2) First Cohort to Earn Certificates Upon Successful Coursework Completion
 - ii) Steering Committee to Complete Initial, Internal Program Review, to be Completed Yearly (Complete Recommended Course Adjustments by Fall 2015)
 - (1) Yearly Education Innovation Assessment Report
 - (2) Update Projected Budgets
- g) Fall 2016
 - i) Begin MOU Review
 - ii) Begin Budget Review
- h) Spring 2017
 - i) Finish MOU Review
 - ii) Finish Budget Review
- i) Summer/Fall 2019
 - i) Yearly Internal Program Review
 - ii) Yearly Education Innovation Assessment Report
 - iii) External Program Review in Coordination with the Advisory Board Members, to be Completed Every Five Years.
 - iv) APC Program Review, Required, to be Completed Every Five Years.

3) Administration and Governance

The proposed Capstone Certificate in Geodesign is a ***fully online*** capstone certificate program. The program has a three tiered governance and administration structure including a(n): Advisory Board, Steering Committee, and Administration Faculty/Staff. Figure 1 shows the Administration and Governance Model for the Program.

Advisory Board:

The Advisory Board will be comprised of solicited volunteer members (serving in a service capacity) from other academic institutions (outside of the University of Wisconsin (UW) System), private sector, public sector, and other constituencies that represent the Geodesign field. The advisory board shall have a minimum of 5 members at all times. It is the Steering Committee's responsibility to ensure the advisory board maintains minimum numbers. The Board; however, does not have voting privileges or administrative power over the Program, the Board serves in an advisory capacity only. Board members will be selected, voted, and approved by the Steering Committee. Voting for all boards and committees will require a majority vote to pass the Steering Committee process. The Department Chair has the right to veto Board members and/or request substitutions. Board members will be convened once a year, in person and/or remotely, to discuss the Program and provide feedback and

recommendations on all aspects of the Program. Board members will also be convened, in person and/or remotely to externally review the Program every five years. Review requirements will be discussed in Section 7-b.

Steering Committee:

The Steering Committee will be comprised of solicited volunteer members (serving in a service capacity) from UW-Madison Department of Landscape Architecture and other constituents within the UW System. The Steering Committee will be comprised of five voting members: Department of Landscape Architecture Chair or Chair Appointee, Program Faculty Director, and three UW System solicited volunteer appointees. One of the three UW System solicited volunteer appointees will be a non-instructional independent third party (for example: a representative from the State Cartographers Office or equivalent). The Program Coordinator will also be a non-voting member of the Steering Committee. The Steering Committee will be responsible for curriculum design and delivery, student grievances/issues, setting admittance and portfolio submission standards, budgetary decisions, admission standards, student application review (admittance), working with the Program coordinator (a Department of Landscape Architecture appointee), internal and external reporting, and MOU reviews. The Steering Committee will meet roughly once a month either in person and/or remotely. The LA Department Chair is responsible for filling positions as they vacate.

Administration:

Program Director:

The Program Director must be a faculty member and will be appointed by the Department of Landscape Architecture Chair. The Director will report to the Department Chair. The Director will guide the curriculum development, ensuring course development and delivery meets the program objectives and goals.

Other duties include: serve as a voting member of the Steering Committee, marketing and student recruitment, teaching a course in the Geodesign Program, and coordinating with the Program Coordinator.

Program Coordinator:

Upon a recommendation from the Steering Committee, the Department Chair will assign a Program Coordinator. The Coordinator will report to the Steering Committee. Additional duties include:

- Coordinate and communicate between participating faculty and staff, including campus administrative units, to ensure policy and procedures are being following to facilitate development and implementation of the Program.
- Facilitate the online course and program development and maintenance process with Continuing Studies' Director of Online Development.

- Conduct student recruitment and marketing through a Website, attendance at conferences and events, and other advertising mechanisms.
- Serve as a non-voting member of the Steering Committee.
- Serve as Academic Advisor, advising students seeking to enter the Program or already within the Program.
- Maintain a priority ranking and waiting list of students for the Program.
- Maintain a student, job placement database, updated yearly.
- Communicate with the appropriate university entities related to keeping and administering student records and transcripts, student progress, coordinate awarding of certificates, etc.
- Maintain yearly documentation of course syllabi, assignment statements, and student work.

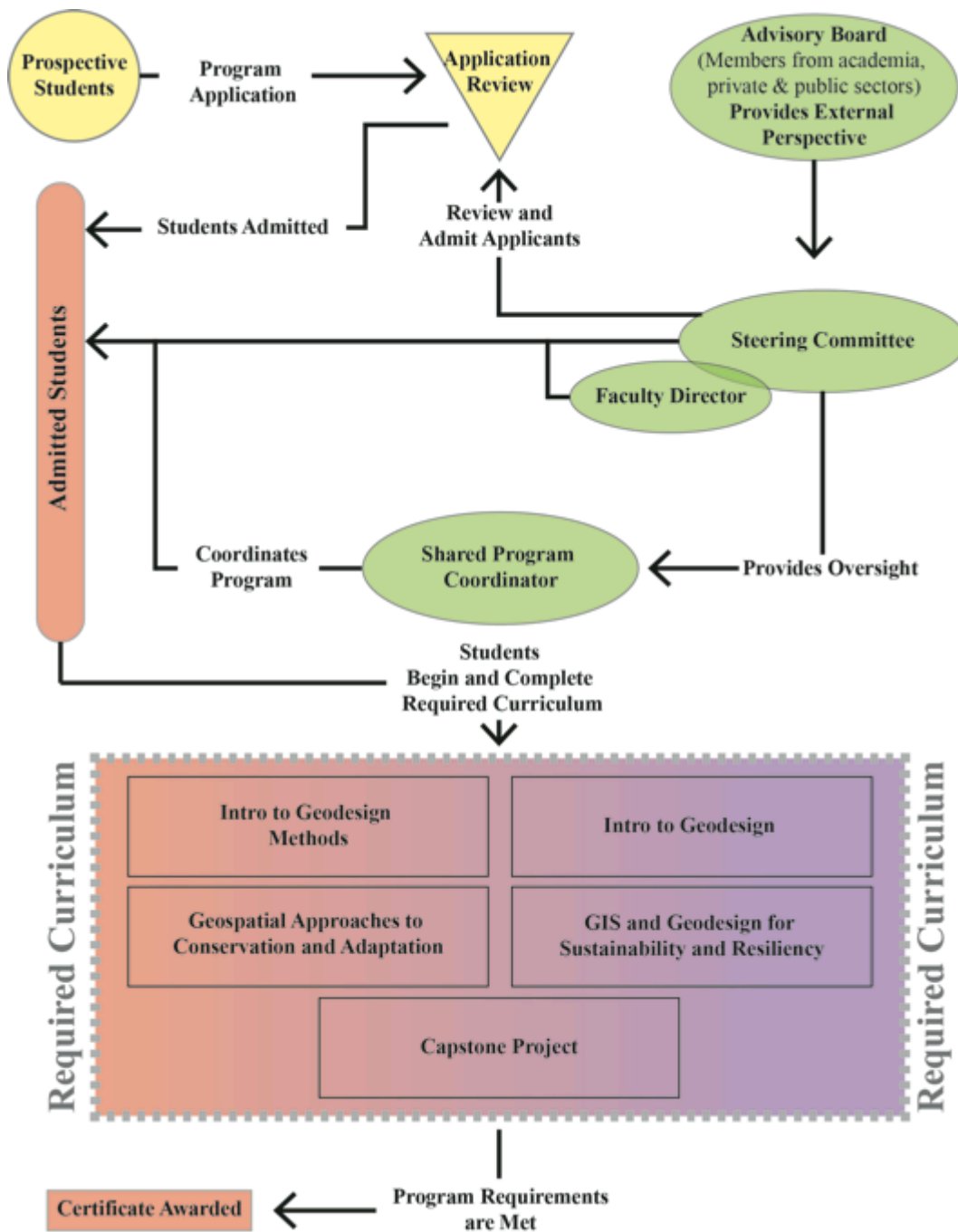


Figure 1: Capstone Certificate in Geodesign Administration and Governance Model

4) Rationale and Statement of Benefits

a) Rationale and Statement of Benefits

“Geodesign is a design and planning method which tightly couples the creation of design proposals with impact simulations informed by geographic contexts, systems thinking, and digital technology.¹”

Geodesign is not a new concept or approach to design or planning. Geodesign instead emphasizes collaboration among the design professions (landscape architects, architects, planners, engineers), the natural and social sciences, and stakeholders. Geodesign requires a trans-disciplinary iterative process that relies on social and natural systems knowledge, using both quantitative and qualitative information and metrics, to rapidly communicate, analyze, and model design impacts throughout the design process – searching for an acceptable optimization of scientific and social systems. In other words, geodesign uses geographic information system (GIS) tools, functions and dashboards throughout the design process to engage and empower stakeholders, represent current conditions, analyze how complex systems function and relate, model and evaluate future design alternatives, and monitor change over time and space. Traditional education does not reflect this environment, as students are educated within a single career path. Geodesign brings these disciplines together to learn geodesign specific methods and technology while working as trans-disciplinary professionals on problem based projects. The effect of geodesign is to create a better, sustainable future for life on earth.

The Capstone Certificate in Geodesign Program is intended to fill the growing demand for integrated geospatial design skills in today’s job market. Geodesign is an exciting new trans-disciplinary approach that integrates spatial technology into the design process, in order to effectively and efficiently inventory, represent, analyze, evaluate, and communicate planning and design alternatives. Access to appropriate education and training has been identified as one of the key barriers to such advanced uses of geospatial technology in the design professions.^{2,3,4} Increasingly, design and planning professionals are being required to provide evidenced based, optimized design solutions within social contexts⁵. This program will offer a practical, experiential, project-based curriculum to provide the skillsets needed across a spectrum of geodesign contexts, focusing on design

¹ Michael Flaxman (2010) Geodesign Summit, Redlands, CA.. Amended by Ervin at the Geodesign Summit; Redlands, CA January 2012.

² Göçmen, Z. A., & Ventura, S. J. (2010). Barriers to GIS use in planning. *Journal of the American Planning Association*, 76(2), 172-183.

³ Vonk, G., Geertman, S., & Schot, P. P. (2005). Bottlenecks blocking widespread usage of planning support systems. *Environment and planning A*, 37(5), 909-924.

⁴ Vonk, G., Geertman, S., & Schot, P. P. (2007). A SWOT analysis of planning support systems. *Environment and Planning A*, 39, 1699-1714.

⁵ Brown, Robert D., & Corry, Robert C. (2011). Evidence-based landscape architecture: The maturing of a profession. *Landscape and Urban Planning*. 100(4). 327-329.

and planning solutions.

While many GIS certificate programs exist across the country, geodesign uses geospatial technology and science to address critical societal needs such as allocating scarce resources, developing well-informed public policy, and designing resilient and sustainable communities. GIS is a tool within geodesign, in many ways GIS certificate programs and basic GIS knowledge are a prerequisite to the Capstone Certificate in Geodesign Program. Only a handful of geodesign programs exist or are being developed in the United States, allowing the UW program to take a leadership role in this important and emerging area (Appendix A). UW's program will be one of two being delivered fully online.

The Department of Landscape Architecture is uniquely positioned to offer this program. The mission of the Landscape Architecture Department includes an emphasis on environmental sensitivity and providing the highest possible quality of life for humans through landscape design, planning, policy, conservation, and management. Geodesign provides a new framework for accomplishing these goals through enhanced technology, methodology, communication and decision-making.

The Geodesign Program will prepare students to work in the evolving, multitude of design and planning roles as an (not a comprehensive list):

- Architect
- Civil Engineer
- Conservation Practitioners
- Environmental Engineer
- Environmental Scientist
- Geographer
- Geoscientist
- Landscape Architect
- Natural Resource Manager
- Public Health Official
- Urban and Regional Planner

b) Target Audience and Evidence of Need

The Capstone Certificate in Geodesign is a post-baccalaureate capstone certificate program intended for working professionals who wish to acquire new or additional skills allowing them to design and plan within a geodesign framework. Students will gain expertise in geodesign frameworks, processes, and technology and how to apply them in a variety of contexts. Currently across the country there are only a handful of colleges and universities that offer or are developing certificate or degree programs in geodesign

(Appendix A). UW will be one of two programs that are offered entirely online (Appendix A). The proposed Capstone Certificate in Geodesign will be the only one of its kind in the Midwest.

Due to the strong practical focus of the curriculum, including the applied capstone project, an online format will be adopted for course delivery to facilitate the broadest possible access by working professionals and non-traditional students. Potential students will be recruited from a variety of professions, with bachelor degrees in, but not limited to:

- Architecture
- Civil and Environmental Engineering
- Ecology
- Environmental Design
- Environmental Planning
- Environmental Studies
- Geography
- Landscape Architecture
- Park and Recreational Planning
- Urban and Regional Planning
- Urban Design
- Real Estate/Development

An online marketing survey conducted by UW-Madison's Division of Continuing Studies (DCS) indicates:

- ESRI (a major GIS software company) lists five institutions across the U.S. that offer Geodesign, showing little competition. These institutions are clustered on the eastern and western parts of the country, leaving a gap in the Midwest for this type of program. Only one other program, Penn State, is offering a program entirely online (Figure 2: Geodesign Programs).
- Most occupations that geodesign could be applied towards are projected to grow faster than the average of all other occupations.
- 23% of respondents who use a technological mapping system reported interest in the program.
- 42% of managers stated an interest in the program for their employees.
- Almost half of respondents indicated that the skills gained from the program would be valuable.
- 29% of respondents submitted their email address to receive future information on the program.
- Personal finances and time were the top two barriers to enrollment.
- 37% of respondents indicated that their employer provides financial assistance and

26% indicated that their employer provides time off for education and training.

- Only 10% of respondents indicated that the online format would be a significant barrier to enrollment.
- Those most likely to enroll are in the Conservation, Environmental Engineering, and Urban/Regional Planning fields and have approximately 11 years of professional experience.

The Program will attract new students by tapping into professionals already working in the field. Geodesign skills are in demand by employers, as shown in the marketing survey and by studies of the use of technology in planning. These skills are not readily available elsewhere due to the lack of geodesign programs at universities nationwide. The nature of online programs will allow the Capstone Certificate in Geodesign Program to attract students beyond Wisconsin and the United States.

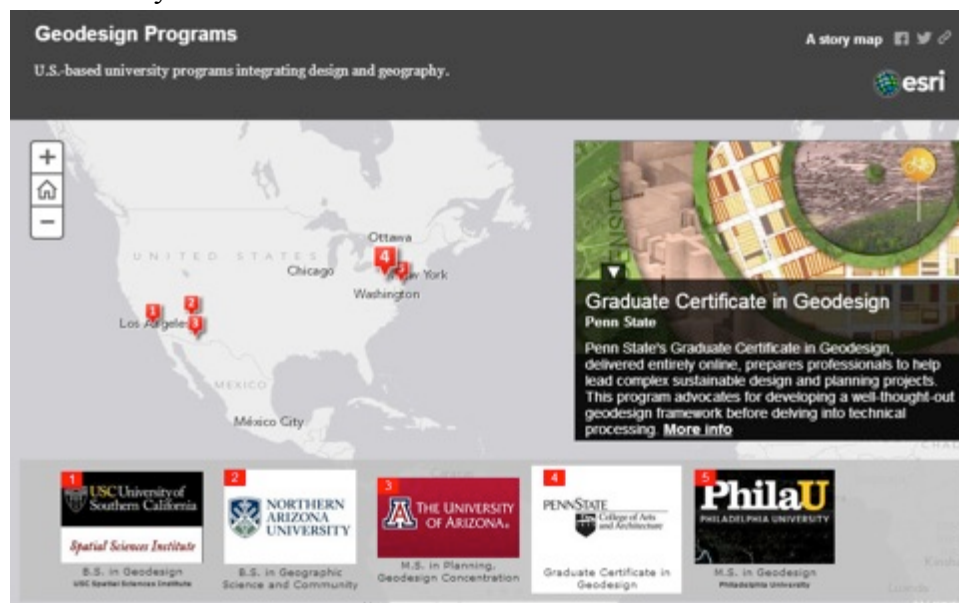


Figure 2: Geodesign Programs⁶

5) Curriculum

a) Curriculum

The Capstone Certificate in Geodesign is a completely online, fifteen-credit, five-course curriculum. Each course counts for three credits. It is intended for students to complete the Program within one year, following a Fall, Spring, and Summer semester format. However, exceptions can and will be made for part-time students who desire to take longer than a year. Two courses will be taught in each of the fall and spring semesters. During the summer semester students will complete a capstone project. Courses will be taken sequentially. Courses will be offered every fall, spring and summer. All courses will be taught by approved faculty and will not affect or be affected by existing university

⁶ Artz, Matt. (unknown). *Geodesign Education*. Retrieved from: <http://www.esri.com/products/technology-topics/geodesign/education>. Accessed: 01.03.2014

departments or units commitments Course Syllabi are located in Appendix B. Instructor CVs are located in Appendix C.

The curriculum will be delivered online using synchronous and asynchronous lectures, labs, projects and discussions. Project-based activities – including lab exercises, course projects, final course projects and a Program capstone project – will engage students to solve design problems using the latest geodesign technology and methodologies. The Program will be offered as a post-baccalaureate at the capstone certificate level because it involves advanced use of GIS and geospatial technologies. Students will be expected to employ geospatial technology in the design fields and exhibit strategic thinking.

Students are required to come to the program with experience using geospatial technologies as demonstrated by course work and/or professional portfolios. Students will also be required to conduct a self-assessment before entering the program to help them understand if they have the required prerequisite skillsets to be successful in the program. If students need GIS courses or refresher courses, they will be directed to take existing online GIS courses offered by the Department of Geography. The Geodesign Program will not offer refresher or introductory GIS coursework. Students must complete refresher coursework prior to being admitted into the program.

b) Course Sequence

Fall Semester:

- LA 630: Introduction to Geodesign (3 cr; Instructor: Doug Hadley)
- LA 631: Geodesign Methods (3 cr; Instructor: Travis Flohr)

Spring Semester:

- LA 671: GIS and Geodesign for Sustainability and Resiliency (3 cr; Instructor: Travis Flohr)
- LA 633: Geospatial Approaches to Conservation and Adaptation (3 cr; Instructor: Janet Silbernagel)

Summer Semester:

- LA 634: Capstone Project (3 cr; Instructors: Janet Silbernagel, Travis Flohr, Douglas Hadley, and others as relevant to each students capstone topic choice).

c) Matriculation

Students must take courses in sequence. Students must complete the prescribed fifteen credits of course work receiving grades of no lower than a B (3.0, 85% or higher) for each course.

6) Relationship to Existing Degree Programs

The instructional duties and responsibilities are contained within the UW-Madison Department of Landscape Architecture. Two courses will be taught by UW-Stevens Point Department of Geography and Geology faculty in order to provide inter-institutional and trans-disciplinary instruction to Program students. UW-Stevens Point Department of Geography and Geology faculty CVs will be submitted for UW-Madison instructional approval. At this time no other existing degree relationships are proposed for financial, marketing, instructional, or course development support.

At UW-Madison a GIS Certificate (post-baccalaureate capstone certificate program) is offered by the Department of Geography. The proposed Capstone Certificate in Geodesign Program, however, is different in several regards. First, the Capstone Certificate in Geodesign Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional experience. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly; however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Capstone Certificate in Geodesign Program will focus on the use of GIS and other geospatial technology using a geodesign framework to solve design and planning problems, specifically related to conservation and development. In a way what is taught in the GIS Certificate program can be seen as and used as fulfillment of Capstone Certificate in Geodesign Program admittance. As per the GIS certificate program website,

“Geographic Information Systems (GIS) is a discipline devoted to the acquisition, storage, management, analysis, and visualization of spatial data. GIS gives you the ability to integrate and analyze spatial and non-spatial information for mapping, planning and decision-making.”⁷

The Capstone Certificate in Geodesign Program; however, is meant to teach Geodesign, an iterative and integrative design and planning process using GIS, but not limited to traditional GIS software (i.e. ArcGIS, GRASS, QGIS, etc), that may include other design software including, but not limited to, AutoCAD, Rhino, Adobe Creative Suite, SketchUP, Google Earth, Building Information Modeling, etc, to conceptualize, analyze, specify designs, involve and collaborate with stakeholders, create design and planning alternatives/scenarios, and evaluation the impacts of proposed design and planning alternatives. The Capstone Certificate in Geodesign Program fully expects students to have a background in GIS science, like the education provided in the GIS Program.

⁷ Unknown. (2014) GIS Certificate Program. In *Department of Geography University of Wisconsin – Madison*. Accessed: 01/21/2014. <http://www.geography.wisc.edu/giscertificate/index.php>

The UW–Madison Department of Geography has been consulted about the Capstone Certificate in Geodesign Program and course proposals throughout the development and approval process. Geography has provided letters of support for the:

- Geodesign Program Educational Innovation (EI) grant in March 2013.
- Program Proposal Draft Approvals 2013 and 2014.
- OCP Course Proposal Approvals (Appendix D).
- Program Proposal (Appendix D).

The letter states that Geography does not anticipate that the Geodesign Program would compete with any of their existing, programs in Cartography and/or GIS or duplicate the department's mission to provide core competencies in GIS.

The UW–Madison Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Capstone Certificate in Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program. Engineering has also provided an updated letter of support for this proposal (Appendix D).

7) Learning Goals, Assessment, and Program Review

a) Learning Goals and Outcomes

The main goal of the Capstone Certificate in Geodesign Program is to prepare design, planning, and management professionals with the skills necessary to successfully use geodesign frameworks, processes, and technologies to solve real world problems.

Students will:

- Be able to demonstrate an understanding of the history and background of geodesign and the emerging role it will play in shaping our environment;
- Understand and demonstrate how to use techniques and research from biological, physical sciences, and social sciences in design, planning, and management contexts to create evidenced based frameworks, designs and policies;
- Understand, evaluate, select, and use geospatial technologies appropriate for a variety of design, planning, and management contexts; and
- Understand and evaluate the role of values and ethics in design, planning, and management of social and natural systems.

During the Program planning process faculty and staff developed a geodesign competency model (Appendix E). Knowledge domains were identified and learning goals

for each domain were listed. Learning goals were subsequently assigned to each of the five program courses to ensure the curriculum addressed the entirety of the desired learning outcomes. Learning goals for each course were evaluated based on the degree of cognitive complexity using a system similar to Bloom and Web's taxonomies. Learning goals overlap between courses in several instances, however, the degree of cognitive complexity increases from the more introductory level classes in fall courses to the more advanced courses offered in the spring.

b) Assessment Plan and Program Review

The Program has a three-tiered assessment plan and program review: student assessment, yearly internal review, and an external program review every five years. However, in the interim there will also be a one-time program and budgetary review during the third year of the program, to ensure instructional, pedagogical, and fiscal responsibility.

Student Assessment:

The Geodesign Program curriculum has been designed to reinforce and address knowledge domains based on the Landscape Architecture Body of Knowledge Study Report⁸ and the Department of Labor's Geospatial Technology Competency Model.⁹ Domains include:

1. Geodesign history and criticism
2. Planning and design
3. Geospatial technology and methods
4. Natural science applications
5. Cultural and social science applications
6. Information science technology and methods
7. Communication and professional skills
8. Public policy and regulation
9. Professional values and ethics

Table 1 shows how knowledge domains will be addressed within the curriculum.

Expanded knowledge domains and skills can be found in Appendix E. Coursework will consist of quizzes, papers, and project assignments. Student grades will be evaluated as part of the yearly report and tracked from year to year.

⁸http://asla.dev.love0.com/uploadedFiles/CMS/Education/Accreditation/LABOK_Report_with_Appendices.pdf

⁹<http://www.careeronestop.org/competencymodel/pyramid.aspx?GEO=Y>

	History and criticism	Planning and design	Geospatial technology	Natural sciences	Cultural & social sciences	Information science	Communication	Policy	Values & ethics
Program Entrance Prerequisite		●	●	●			●		●
Introduction to Geodesign	●	●	●	●	●	●	●	●	●
Geodesign Methods		●	●		●	●	●		
Conservation & Adaptation		●	●	●				●	●
Sustainability & Resiliency		●		●	●		●	●	●
Capstone	●	●	●	●	●	●	●	●	●

Table 1: Geodesign Knowledge DomainsYearly Program Review:

An annual report evaluating program effectiveness will be prepared by the Faculty Directors and Program Coordinator and presented to the Steering Committee for review using the following: enrollment numbers and trajectories, internal review of student coursework related to course outcomes, student placement, and post-course student surveys.

Building and maintaining student enrollment numbers will be seen as one sign of Program effectiveness in providing and meeting current demand for Geodesign education. The program will be reviewed internally by the Program Directors and Coordinator and submitted as part of the Annual Report, to adjust curriculum needs and evaluate student outcomes per the geodesign competency model (Appendix E). DCS will be included in this review, to adjust online course delivery as necessary.

Post-course surveys will be conducted for students to evaluate student satisfaction with course content, instructor effectiveness, course delivery, workload, and learning outcomes. While self-reporting is known to not be effective in evaluating pedagogy, it is important to understand course delivery and its effectiveness in engaging students. Instructors will use these surveys to evaluate performance, and the Program Coordinator

will include summaries in the Annual Report presented to the Steering Committee. At the completion of the program, exit interviews will be conducted for all students to assess program content, logistics, and learning outcomes. Students who withdraw from the program will also be surveyed to evaluate the student's reason(s) for leaving the program.

Placement of students in geodesign careers will be tracked through a placement database maintained by the Program Coordinator. The target goal is to have greater than 75% of certified students employed in geodesign positions. However, it may take several years to effectively track certificate graduate employment.

Third Year Review:

During the third year a comprehensive, internal program review will be completed. The Program Coordinator and The Faculty Director will compile the first three years' worth of course syllabi, assignment statements, student work, enrollment numbers, student surveys, and budgets. A report will be compiled and presented to the Steering Committee for discussion and review.

External Review:

During the fifth year of the program and every five years after the initial five-year review; a comprehensive, external review will be completed, in place of the internal yearly review. This review will fulfill the required APC program review and provide a more robust program review. The Advisory Council, Steering Committee, and appropriate UW committees will be included in the external review process. The Program Coordinator and the Faculty Director will compile the material required for the external program review, including, but not limited to:

- Yearly Reports
- Course Material (Instructor CVs, Syllabi, Assignment Statements, and Student Work)
- Student Surveys
- Employer Surveys
- Enrollment Numbers
- Job Placement Numbers
- Budget

The Steering Committee will convene board members in person and/or remotely to address areas of concern, growth, issues, opportunities, and constraints for the program to address. The comments from this meeting will be compiled and presented to the appropriate Program and UW administration, including response strategies.

8) Admission Requirements

The Capstone Certificate in Geodesign Program is open to University Special (non-degree seeking) Students who hold a bachelor's degree or an equivalent credential from an

accredited college or university. Degree-seeking students may not participate in the Program. This means traditional undergraduate and graduate/professional degree seeking students cannot participate or take classes within this program. Individuals seeking admission to the program must have a baccalaureate degree from an accredited US institution or equivalent, with a minimum GPA of 3.0 (out of 4.0). Students must have GIS experience prior to entering the program. Students must document their experience with a portfolio submission. The portfolio will document students' previous work with geospatial technology and design, planning, and management applications from previous coursework or projects from professional practice. Portfolio standards will be set by the Steering Committee. The Steering Committee will also work with DCS to create application and acceptance deadlines. All admittance requirements will be clearly spelled out and communicated to students via the Program's website.

Students may enroll full- or part-time in fall semester. Because this is a capstone certificate program, full-time students will take six credits in the fall and spring semesters and a three-credit summer capstone project course to complete the Program in one year. Part-time students can take one, three-credit class a semester and complete the Program in more than one-year, but must take courses in sequence. Initial enrollment will be limited to no more than 30 students to ensure rigorous and thorough instructional delivery without straining instructional capacity. The enrollment limit will be reassessed during the external program review.

International students¹⁰ are also encouraged to apply. Because the Capstone Certificate in Geodesign Program is fully online, international students are not required to have a visa. The Program is not (offering) and cannot offer UW I-20 and will not accept students who would require a visa through the Program. However, every applicant whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Students are required to have minimum scores in order to not need UW English as a Second Language services, as the Program does not provide funding for these services. The student's score will not be accepted if it is more than two years old from the start of their admission term. Country of citizenship does not exempt applicants from this requirement. Language of instruction at the college or university level and how recent the language instruction was taken are the determining factors in meeting this requirement. Applicants will be exempt if:

- English is the exclusive language of instruction at the undergraduate institution; or
- They have earned a degree from a regionally accredited U.S. college or university not more than 5 years prior to the anticipated semester of enrollment; or

¹⁰ International student information, rules, and guidelines are provided at the following urls:

- <http://continuingstudies.wisc.edu/capstone/faq-students.htm>
- <http://www.admissions.wisc.edu/international.php>

- They have completed at least two full-time semesters of graded course work, exclusive of ESL courses, in a U.S. college or university, or at an institution outside the U.S. where English is the exclusive language of instruction. Completion of graded course work cannot be more than five years prior to the anticipated semester of enrollment.

The required proficiency scores are:

- Minimum [TOEFL](#) requirement: 250 internet (iBT);
600 paper-based test (PBT)
- Minimum [IELTS](#) requirement: 8.0
- Minimum [MELAB](#) requirement: 85

The Program Steering Committee will decide student admissions. The Program Faculty Director and Coordinator will coordinate admissions with the Adult Career and Special Student Services office in the Division of Continuing Studies (DCS-ACSSS). Special students will apply via the online UW System application by selecting the Capstone Certificate in Geodesign Program plan code from a list on the application. (This code will be available following UAPC approval; ACSSS will add the new plan code to the UWS e-application.) DCS-ACSSS will enter a final admission decision as directed by the Program Director or Coordinator. DCS-ACSSS will serve as the advising, admissions, and academic dean's office for all University Special students.

9) Marketing and Enrollment

Based on the enrollment numbers of the existing geodesign programs mentioned in Section 4-b, the Capstone Certificate in Geodesign Program is expected to begin the first year with an enrollment of between 6 and 15 students (however the Budget as discussed in Section 12 are conservatively estimated on an enrollment of 8 students). As the program becomes established, the enrollment is expected to grow to between 20 and 30 students (the projected budget for 2017 and beyond is based on 30 students). As mentioned, initial enrollment will be limited to no more than 30 students.

On-time, one-year graduation rates for full-time students are expected to be around 80%. Based on numbers from the GIS Certificate Program at UW-Madison it is anticipated that approximately 20% of students will be part-time. Graduation rates for part-time students are anticipated to be similar to that of full-time students.

The program development team is working with the Division of Continuing Studies at UW-Madison to develop and implement a marketing plan. The marketing plan will be completed Spring 2014. Marketing will not begin until full program and course approvals are received. Marketing will be international, but *due to current state regulations, at this time we are not able to accept applications to UW-Madison for online courses or programs from students*

*living in or planning to live in the following states while enrolled: **Alabama, Arkansas, Kansas, Kentucky, Washington (state)***. Marketing will be coordinated with UW to ensure all regulations are being followed.

10) Progress and Certificate Completion

The Program Coordinator is responsible for monitoring student progress toward certificate completion, administering student records and transcripts, communicating student completion with, CALS Academic Affairs Office, the Office of the Registrar, and the Division of Continuing Studies, and coordinating awarding of certificates. Students must maintain a minimum of a 3.0 GPA to progress within the program. Students who have not meet matriculation standards will need to be advised by the Program Coordinator and Faculty Director to work out a matriculation plan to complete the Program.

Yearly reports, compiled by the Program Coordinator and Faculty Director will document who is enrolled and active within the program and documenting student progress. A report will be provided to the CALS Academic Affairs Office, Registrar as well as the Division of Continuing Studies. The Program will coordinate the award of certificates. The Program will be responsible for wording and printing of certificate documents and must follow DCS guidelines.

Once students have completed all the requirements for the Program the Program Coordinator will communicate the necessary records to CALS Academic Affairs Office, who will then report the necessary records to the Registrars Office. Certificates will be rewarded through the Registrars Office, with Program approval.

11) Advising and Expectations/Substitutions

Students must earn all Capstone requirements in residence at UW-Madison. In keeping with other policies, online credits are considered earned in residence. Prior academic work from other universities or taken in the course of a degree-seeking program at UW-Madison may not be used to satisfy Capstone Certificate requirements. The students are expected to enter the Program with existing GIS experience as demonstrated during the application and admittance process. No substitutions are allowed.

The Program Coordinator and Faculty Director will serve as the advisors for Program and course related issues, questions, and concerns. DCS-ACSSS will serve as the advising, admissions, and academic dean's office for all University Special students. Students who have not meet matriculation standards will need to be advised by the Program Coordinator and Faculty Director to work out a matriculation plan to complete the Program. Currently the offices responsible for advising have the capacity to do so. However, the Steering Committee will handle assigning additional advising resources as needed. Please note: international

Students will not be provided support for using UW-Madison's ESL Center.

12) Financial Aid and Graduate Assistantships

Students enrolled in the Capstone Certificate in Geodesign Program may be considered for merit-based financial aid by the department or program, as well as for need-based financial aid by the Student Financial Aid Office (US citizens only). The Program website will document when and what funds are available to students, with approval from the Steering Committees review and approval. However, currently the program will not be providing any financial aid, but reserve the right to do so in the future. Students will not be eligible for TA, RA, PA or graduate fellowship support.

13) Budget and Fiscal Structure

The program is being built using a program revenue model using a 131-fund structure. Initial start up funding for program salaries, course conversions, course creation, and marketing have been provided by:

- DCS Grant
- University Education Innovation (EI) Grant
- College of Agricultural and Life Sciences (CALS) EI Grant
- Departmental Course Buyouts.

Many of these are ongoing commitments that will help support the initial three years of the program, following which the program is expected to be self-supporting; requiring a minimum projected enrollment of approximately 15 students (see Section 14 for more details).

Currently the tuition and fees are set as follows: \$4,460.00 for Fall/Spring Semesters and \$2,230.00 for Summer Semester. It will cost students \$11,150.00 to earn their certificate. Due to the fully online nature of the Program, there is no out-of-state tuition rate. The first through third year projected budgets are located in Appendix F. See Appendix G for the projected budget beyond the first three years.

14) Ongoing Commitment

The Capstone Certificate in Geodesign Program commits to and has received commitments from the Department of Landscape Architecture, CALS, and DCS. They are discussed below:

Capstone Certificate in Geodesign Program:

- Ensure the required courses are approved, offered and included in the curriculum; including any future changes, approvals, and reviews.
- Maintaining regular contact with the Registrar's Office, CALS, and DCS; including, providing relevant information for the DCS website.

- Maintain certificate requirements so they are up-to-date and see that curriculum changes are approved through the appropriate academic approval processes.
- Notify the Office of Registrar, CALS, Graduate School, and DCS of curricular changes.
- Seek governance approval if the Program is suspending admissions or discontinuing the certificate program.
- Maintain a website with current, accurate, and governance approved Program details.

Department of Landscape Architecture:

- Ensure the staffing of the Steering Committee.
- Ensure, through the Program staff, the required courses are approved, offered and included in the curriculum; including any future changes, approvals, and reviews.
- Provide supplemental marketing support for the first three years, on an as needed basis.
- Maintain existing, in place and approved course buyouts for the first three years, to support initial course instruction. After the first three years, the Program revenue will support all Program instruction (assuming minimum enrollments).
- Maintain a staff position for the Program Coordinator, to be supported by Program revenue when initial grant money is exhausted.
- Ensure that Program instructional obligations are not conflicting with Department of Landscape Architecture instructional obligations, including managing teaching loads.

CALS:

- Provide an additional \$5,000.00 in EI funds for fiscal year 2015.
- Create and setup the appropriate financial accounts and documentation, in coordination with the appropriate student tuition and fees collection processes.
- Provide the initial setup for the Program website.
- Host the Program website.

DCS:

- Allow initial grant funds to rollover from fiscal year 2014 to fiscal year 2015.
- Provide an initial marketing strategic plan and support.
- Provide and maintain online instructional support and infrastructure.
- DCS-ACSSS will serve as the advising, admissions, and academic dean's office for all University Special students.

15) Implementation Form



Implementation Form – Capstone Certificates

This form must accompany a capstone certificate proposal. An updated form should be submitted when changes to the certificate are made. It is used by administrative offices to better assist departments and programs with implementation. Questions in this form reflect guidelines in the Full Guidelines for For-Credit Certificates, <http://apir.wisc.edu/certificates.htm>.

Document Date: **02.18.2014**

Name of Capstone Certificate: **Capstone Certificate in Geodesign**

Faculty Program Director: **John Harrington** jaharrin@wisc.edu Ph: 608.263.4587 and **Travis Flohr** tflohr@wisc.edu Ph: 608.263.7300

Primary Faculty/Staff Contact: **Doug Hadley** dbhadley@wisc.edu Ph: 608.2638.6506

Home Department/Academic Unit (Name/UDDS): **Landscape Architecture,**

Approval Date: **02.10.2014**

School/College: **College of Agricultural and Life Sciences**

Approval Date:

GFEC Approval Date:

UAPC Approval Date:

Implementation Term (typically the fall term after UAPC approval): **Fall 2014**

Year that first program review is scheduled (usually 5 years after implementation): **Fall 2019-Spring 2020**

Information to be completed by RO and APIR:

Plan Code (assigned by the Registrar's Office):

CIP Code (assigned by Academic Planning and Institutional Research):

Primary Divisional Disciplinary Assignment (assigned by APIR for analysis purposes only):

Curriculum (check one):

_____ Included in detail in the proposal

X A list of required and elective courses and any other program requirements is attached

Credit total required (9-12 credits): **15 Credits**

Projections for annual enrollment: **20-30 Students**

Specify overlap provisions – name degree/major, minor or certificate programs that a student may have previously earned that disqualify them from being admitted to the capstone certificate program.

There are no disqualifying degree, majors, minor or certificate programs.

Please answer the following:	Yes	No
Confirm that the capstone certificate is open to only non-degree seeking University Special students who hold a bachelor's degree.	X	
Confirm that all credits are required to be earned in residence at UW-Madison.	X	
Will there be limits on enrollment? If Yes, please explain:		X
Confirm that all core/required courses are approved through the school/college curriculum committee.		X
Confirm that courses in curriculum are offered on a regular basis and have space for students in this program.	X	
Confirm that required courses in the curriculum are numbered 300 or above.	X	
Confirm that courses taken as Pass/Fail or Audit are not included in the curriculum.	X	
Are courses taken Credit/No Credit allowed? If yes, specify limits:		X
Confirm that special topics courses are only used if all instances count for the certificate.	X	

Confirm that, at a minimum, C grades must be earned on all course work attempted for the capstone certificate program. (Only graduate-level work from the capstone that is earned with a grade of B or better is eligible for subsequent application to a UW-Madison graduate degree program.) If other requirements, please specify:	X	
Will exceptions to the course core requirements be allowed? If yes, specify limits and process:		X
Confirm that the program/department has a process in place to monitor student progress and to notify the Registrar's Office when students complete the certificate requirements.	X	
Assessment plan – confirm that the proposal includes a plan that describes how the program faculty will regularly evaluate student learning.	X	
Confirm that the program/department understands that international students who must request a UW-Madison-issued I-20 (for the F-1 student visa needed for legal study in the US) will only be eligible to participate in the program if it is offered full-time and if the program has been approved by the US government to receive such international students. If the program is offered entirely online or the international student is here legally on another visa (such as the JS, H, etc.) and an I-20 from UW-Madison is not needed, then this provision does not apply.	X	
Will this capstone certificate be implemented as a program revenue program?	X	
Has a budget been developed with the Division of Continuing Studies and the sponsoring school/college dean's office?	X	
Who is the appropriate school/college contact for questions? Travis Flohr tflohr@wisc.edu Ph: 608.263.7300 or Douglas Hadley dbhadley@wisc.edu Ph: 608.2638.6506		

Appendix A: Current US Geodesign Programs

University of Arizona

MS in Planning with Geodesign concentration

On-campus delivery

<http://cala.arizona.edu/planning?destination=node/1033>

Northern Arizona University

BS in Geographic Science and Community Planning

4-year program

On-campus delivery

<http://nau.edu/SBS/GPR/Degrees-Programs/BS-Geographic-Science-Community-Planning/>

Penn State Online (World Campus)

Graduate Certificate in Geodesign

1-year program

Online delivery

<http://www.worldcampus.psu.edu/degrees-and-certificates/geodesign-certificate/overview>

Philadelphia University

MS in Geodesign

1-year program

On-campus delivery

<http://www.philau.edu/msgeodesign/>

University of Southern California

BS in Geodesign

4-year program

On-campus delivery

<http://spatial.usc.edu/index.php/undergraduate-programs/geodesign/>

Appendix B: Course Syllabi

LA 630 Introduction to Geodesign

Course Overview

Geodesign is the integration of design and planning, the social and economic sciences, the physical and natural sciences, human values and public participation, using geographic information systems (GIS) with the goal of creating a better, sustainable future. Topics in GIS, land information systems (LIS), decision support systems, scenario planning, 3-D visualization and communication, suitability analysis, growth management, public participation GIS, impact assessment and interactive dashboards, and monitoring change will be addressed for planners, designers, engineers, scientists, elected officials, and citizens.

The introduction to Geodesign will cover a broad body of knowledge that includes:

- Geodesign history, criticism and foundational ideas,
- Planning and design processes and decision-making frameworks,
- Roles and practices of geospatial technology for planning and design,
- Interdisciplinary application of the natural, cultural, and information sciences in decision-making,
- Spatial communication,
- Evaluating public policy and regulation through a spatial lens, and
- Values and ethical issues in Geodesign.

Target Audience

This course is intended for audiences interested in a broad introduction to Geodesign for planning, design, sustainability, engineering, and architecture. Students should have a background in geography, natural resources, landscape architecture, or urban and regional planning. Students should have an introduction to geographic information systems.

Topics

Module 1: What is geodesign? Where do I fit in with geodesign?

Learning Outcomes

1. Define geodesign using words and graphics. Consider geodesign using a systems or integrative approach for creating (designing) (planning for) a sustainable future.
2. Categorize the professional skills and competencies required for conducting geodesign (a verb) or creating a geodesign (a noun).
3. Reflect upon your personal and/or professional passions – what is it that you want to do that will help to create a sustainable future? Using words and diagrams identify the people you must work with to create a sustainable future and their relationships in geodesign.

Topics Covered

Capstone Certificate in Geodesign Proposal

1. Definitions of geodesign.
2. Who participates in performing geodesign or creating a geodesign. Where do they fit?
3. What is the result of doing geodesign?
4. How systems thinking fits with the concept of geodesign.

Instructional Material:

1. Miller, William. R. (2012). Introducing Geodesign: The Concept. Esri. Redlands. CA.
<http://www.esri.com/library/whitepapers/pdfs/introducing-geodesign.pdf>
2. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, San Diego, CA. Prologue.
3. Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands. CA. Chapters 1 and 2.
4. Jack Dangermond Talks about geodesign at TED2010.
<http://video.esri.com/watch/125/jack-dangermond-talks-about-geodesign-at-ted2010>
5. Artz, Matt. (2011). Nature 3.0: Designing a Better Planet. Future Earth Institute.
<http://futureearthinstitute.org/2011/11/08/nature-3-0-designing-a-better-planet/>
6. Use the geodesign bibliography <http://gisandscience.com/2009/08/13/geodesign-a-bibliography/> (or other source) to find articles, videos, presentations, or other media that represent and describe your passion or professional aspiration as it relates to the concept of geodesign and designing a sustainable better planet.

Module Tasks:

1. Define geodesign.
2. Identify what the purpose of geodesign is.
3. Create a bubble diagram (relational diagram) that displays and describes who engages in geodesign and how they engage with each other. Identify where you fit in this diagram.
4. Create a bubble diagram (relational diagram) that displays and describes what skills and competencies are necessary to execute geodesign – from planning to implementation. Show the relationships and importance of each skill and competency.
5. Form discussion groups to refine definitions and diagrams.

Module 2: Timeline of Geodesign and Geodesign Innovators (Innovators Prospectus)

Learning Outcomes

1. Compare and contrast the work of geodesign innovators to your (our) definition of geodesign.
2. Examine and synthesize their contributions to the field of geodesign?

Suggested Innovators to Investigate

- | | | |
|------------------------------|-----------------------|------------------------|
| 1. Stanley White | 8. Carl Steinitz | 16. John Muir |
| 2. Hideo Sasaki | 9. Ben Niemann | 17. Frank Lloyd Wright |
| 3. Garrett Eckbo | 10. Fritz Steiner | 18. Ervin Zube |
| 4. Philip Lewis Jr. | 11. Lewis Hopkins | |
| 5. Ian McHarg | 12. Jack Dangermond | |
| 6. Ebenezer Howard | 13. Aldo Leopold | |
| 7. Frederick Law
Olmstead | 14. John Tillman Lyle | |
| | 15. Lewis Mumford | |

Instructional Material:

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, San Diego, CA. Chapter 2.
2. Ndubusi, Forster. (2002). Ecological Planning. A Historical and Comparative Synthesis. John Hopkins University Press. Baltimore, MD. Introduction and Chapter 1.
3. Select other materials about each innovator.

Module Tasks:

1. Select an innovator that you believe that you share something in common with (professional interest). You can select someone other from this list. Read at least three documents about this person, including one case study that showcases some of their work.
2. Prepare a short synopsis that considers the innovator within the scope of geodesign and considers the learning objective. Post your synopsis of the innovator on D2L. Its purpose is to help others learn geodesign from your perspective. Make sure that you cite your readings.
3. Read the innovators prospectus from three of your colleagues. Critique, compare, or contrast with the innovator you selected.
4. As a class, create an interactive timeline that is stored in the cloud. Place your innovator in the timeline with your document attached.

Module 3: Design Models

Learning Outcomes

1. Describe the design process and be able to articulate what happens at each stage.
2. Examine, compare and contrast competing design models.
3. Define criteria to evaluate design models.
4. Distinguish the strengths and weaknesses of each design model.

Models to Examine

1. Wisconsin Comprehensive Smart Growth
2. Natural Resources Conservation Service
3. John Tillman Lyle
4. Frederick Steiner
5. Carl Steinitz
6. Planning Analyst (Geodesign)

Instructional Material

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 9, 10.
2. Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands, CA. Chapter 3.

3. Brail, Richard. Klosterman, Richard. (2001). Planning Support Systems. Esri Press. Redlands, CA. Chapter 1.

Discussion:

1. Identify significant concerns that must be considered in geodesign?
2. What are the criteria we should use to evaluate a geodesign process? Why do you consider these criteria important?
3. What considerations are made to design that happens in the public domain – those that affect private and public rights?
4. According to Klosterman, how does planning happen in today's age? What does geodesign need to do to address that?
5. Compare and contrast two design/planning models? Based upon our evaluation criteria, what do you perceive as their strengths and weaknesses?

Module 4. Geodesign Tools: GIS and Planning Support Systems

Learning Outcomes

1. Categorize GIS and planning support systems into distinct functional areas – how they are used to address design and planning?
2. Evaluate GIS and planning support systems. What are they designed to do? What are their weaknesses?
3. Give evidence whether or not the American Planning Association and the American Society of Landscape Architects have fully accepted GIS and PSS for planning and design. Identify what barriers exist for full adoption.

Instructional Material:

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 11, 12.
2. Brail, Richard. Klosterman, Richard. (2001). Planning Support Systems. Esri Press. Redlands, CA. Chapters 2, 3, 4, 9, 10, 11, 12).
3. Flaherty, Edward. (2012). Computers in the Design Process 1987-2005. A Short Historic Perspective. American Society of Landscape Architects.
4. Vonk, Guido. Geertman, Stan. 2008. Improving the Adoption and Use of Planning Support Systems in Practice. *Applied Spatial Analysis* (2008) 1:153-173.
5. Vonk, Guido, Stan Geertman, and Paul Schot. 2007. A SWOT analysis of planning support systems. *Environment and Planning* 39: 1699-1714.
6. Vonk G, Geertman S, Schot P, 2005, "Bottlenecks blocking widespread usage of planning support systems" *Environment and Planning A* 37(5) 909 – 924

Discussion:

1. Categorize geodesign tools by function. What part of the geodesign process do these tools fit in with well? What are the strengths and weaknesses of various tools?
2. Create a rating system for evaluating geodesign tools.

3. What are the barriers for planners and designers in using GIS and geodesign tools?
What needs to happen to overcome these barriers to change?

Module 5. Designing a Multi-Purpose Land Information System for Geodesign

Learning Outcomes

1. Define the essential components of a Multi-Purpose Land Information System for geodesign.
2. Define the goals of a multi-purpose land information system.
3. Judge the role of the Open GeoSpatial Consortium. Determine what the OGC should be doing to promote your goals.
4. Consider the stages of MPLIS modernization in WI. Formulate what is yet necessary to achieve democratization of the MPLIS in WI. Consider the ethical issues in geodesign without a democratized MPLIS.
5. Describe the role of authoritative data in geodesign.

Instructional Material:

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapters 4-8
2. http://www.opengeospatial.org/domain/gov_and_sdi#responsibility
3. http://www.opengeospatial.org/domain/geosciences_and_environment
4. <http://www.opengeospatial.org/domain/built>
5. Yang, C., Goodchild M., Huang Q., Nebert D., Raskin R., Xu Y., Bambacus M., Fay D., 2011 (in press), Spatial Cloud Computing: How geospatial sciences could use and help to shape cloud computing, International Journal on Digital Earth.
6. Joffe, Bruce. (2012). Does Government GIS Data Belong to the People? http://www.cadalyt.com/gis/does-government-gis-data-belong-people-14283?no_cache=1328735997
7. Goodchild, Michael. (2007). Assertion and Authority: The Science of User Generated Geographic Content. University of California, Santa Barbara.

Discussion:

1. What are the essential components of a Multi-Purpose Land Information System for geodesign? Why?
2. Based on your readings, the class's definition of geodesign and your experiences of government in the United States, define the goals of a MPLIS. What is the ideal role of government and what is the ideal role of the private sector (business) in creating the MPLIS? Why?
3. What is authoritative data? How does data become authoritative – what's the process for data to attain authoritative status? How does the process apply to Dane County? Google Maps? For roads data? For parcels? For environmental change?
4. Discuss the role for crowdsourced or volunteered geographic information to geodesign. Should VGI every be considered authoritative? Under what conditions?

Module 6: Public Participation in Geodesign

Learning Outcomes

1. Assess the role of public participation in Geodesign. Assess the role of GIS in public participation.
2. Define and examine significant issues in PPGIS.

Instructional Material

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 12 (13 Optional).
2. Sieber, Renee. (2006). Public Participation Geographic Information Systems: A Literature Review and Framework. Annals of the Association of American Geographers, 96(3), 2006, pp. 491-507.
3. Miskowiak, Douglas. A. (2004). Crafting an Effective Plan for Public Participation. UW-Stevens Point. Center for Land Use Education. Stevens Point, WI.

Discussion

1. Debate the value of geographic information systems to broaden public involvement, promote goals of organizations, make planning meaningful to the public, make public involvement more useful for planning.

Module 7: Navigating Human Attitudes and Behaviors

Learning Objectives:

1. Describe cognitive, technological, and structural fixes and how to use them to modify human attitudes and behaviors.
2. Prescribe the roles of GIS in navigating human environmental attitudes and behaviors.

Instructional Material

Heberlein, Thomas. Navigating Environmental Attitudes. Oxford University Press. 2012.

Module 8: Scoping the Geodesign Study.

Learning Outcomes:

1. Recognize Geodesign objectives of scoping.
2. Determine the roles of the geodesign participants, including citizens.
3. Consider which tools and techniques are helpful at this stage.
4. Consider the issues that might be addressed at this stage of geodesign.
5. Administer Steinitz's six scoping questions and summarize what happens at each stage.

Instructional Material:

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 14
2. Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands, CA. Chapter 4.

Discussion:

1. What is the purpose of the Explore or Scoping phase of geodesign?
2. Why does Steinitz propose that data collection is not the first step in geodesign? What is the process to then learn more about the study area?
3. What tools are in the geodesign toolkit to ask the why questions in the scoping stage? What are the circumstances in which these tools are ideally used or not to be used?
4. When have we collected enough data? What is the right data?

Scoping Tools:

1. Cognitive Mapping
2. Surveys
3. Open meetings
4. Previous plans
5. Newspaper articles
6. Laws and regulations
7. Exploring patterns and trends (census, agricultural census, natural patterns, trends)

Collaborative Studio:

The purpose of geodesign at this stage is to gain increased knowledge about the study area and the people of the place, and a collective understanding of the scope of the project so we can answer the WHY questions. Let's scope a study around:

- Dane County (Design Dane)
- Locating a new Wisconsin State Park
- Managing North Sea use.
- Shoreland Zoning
- Wisconsin's Working Lands (Farmland Preservation)

Module 9: Designing the Study Methodology

Learning Objectives:

1. Recognize the objectives at this phase or stage of geodesign.
2. Explain the eight ways of designing. Describe ideal situations for using each strategy.
3. Explain the complexity hierarchy of process models. Determine which models are required to sufficiently evaluate a geodesign.
4. Administer Steinitz's six questions and summarize what happens at each stage.

Instructional Material:

Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands, CA. Chapter 4.

Discussion:

1. Why are process questions addressed in reverse order in this phase of geodesign?
2. Explain the eight ways of designing. Describe the ideal situation for using that planning strategy.
3. Explain the complexity hierarchy of process models. Determine which models are required to sufficiently evaluate a geodesign.

Collaborative Studio:

The purpose of geodesign at this stage is to design the project methodology. Design a project methodology by addressing Steinitz's six questions:

- Dane County (Design Dane)
- Locating a new Wisconsin State Park
- Managing North Sea use.
- Shoreland Zoning
- Wisconsin's Working Lands (Farmland Preservation)

Module 10: Analyze

Learning Outcomes:

1. Define a strategy for analyzing pertinent issues involved in geodesign studies considering the questions to address and the limitations of data and technology. What are the important questions?
2. Consider and evaluate various approaches to analysis concerning a range of issues: transportation, demographics, land use, human health, agricultural, climate.

Instructional Material:

Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 15.

Collaborative Studio:

The purpose of geodesign at this stage is to analyze important patterns, trends, and relationships to help create a well-informed Geodesign. Develop a strategy to analyze issues around.

- Dane County (Design Dane)
- Locating a new Wisconsin State Park
- Managing North Sea use.
- Shoreland Zoning
- Wisconsin's Working Lands (Farmland Preservation)

Module 11: Allocate

Learning Outcomes:

1. Compare and contrast various geodesign strategies for allocating resources, including gestalt logic, Interactive, Scenario-Based, and Agent based models.
2. Consider the roles of professionals and citizens at this stage of the geodesign process.

Instructional Material:

Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 16.

American Farmland Trust. (2010). Cost of Community Services Studies. Fact Sheet. Farmland Information Center. http://www.farmlandinfo.org/sites/default/files/COCS_08-2010_1.pdf

Edwards, Mary M. (2000). Community Guide to Development Impact Analysis. Wisconsin Land Use Research Program. Program on Agricultural Technology Studies. University of Wisconsin-Madison.

Collaborative Studio:

The purpose of geodesign at this stage is to make place-based decisions to allocate resources on the landscape.

- Dane County (Design Dane)
- Locating a new Wisconsin State Park
- Managing North Sea use/Wisconsin's Navigable Waters.
- Shoreland Land Use
- Wisconsin's Working Lands (Farmland Preservation)

Module 12: Evaluate

Learning Outcomes:

1. Define and model geodesign methodologies to evaluate the consequences of decisions prior to implementation. Consider methodologies related to your

- professional field of interest (e.g. aesthetics, timber values, ecosystem services, soil conservation).
2. Envision a strategy to communicate the results to professionals and lay people to change attitudes and behaviors. Consider cognitive, structural, and technological fixes to various problems.

Instructional Material:

Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 17.

Module 13: Carrying Out the Study

Learning Objectives:

1. Recognize and identify Geodesign methods appropriate to various social and professional circumstances.

Instructional Material:

Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands, CA. Chapters 6-9.

Collaborative Studio:

1. Present your work.

Module 14: A Future for Geodesign – Gauging Success

Learning Objectives:

1. Recognize the obstacles toward implementing Geodesign methods.
2. Articulate solutions for implementing Geodesign methods.

Instructional Material:

Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands, CA. Chapters 10 and 11.

LA 631: Geodesign Methods

(3 Credits)

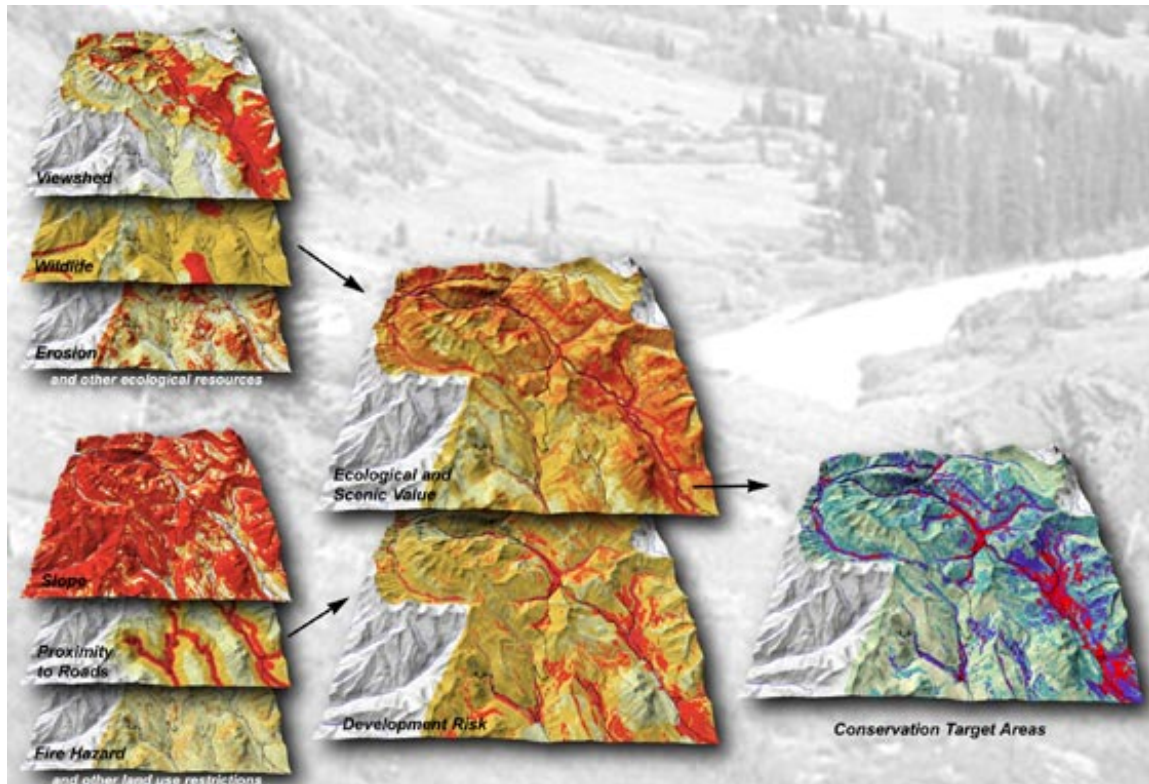


Image: Computer Terrain Mapping (CTM)

Course meeting times: Asynchronous online

OVERVIEW OF COURSE STRUCTURE AND SCHEDULE

Topical, lecture material will be presented weekly via either synchronous online webinars or asynchronous online video lectures, or voice-over power points, and be paired with supplemental material in the form of web-links and readings. Students will engage in guided weekly asynchronous online discussions, complete six module assignments, and a preliminary project proposal focused on Geodesign methodologies.

15 weeks

Module 1: Representation Model Methods (Week 1-2)

- Week 1 – Topic & Discussions: Types of Spatial Data and Identifying Primary and Secondary Data Sources
- Week 2 – Topic & Discussions: Primary and Secondary Spatial Data Collection Technology and Methods

Module 2: Process Model Methods (Week 3-4)

- Week 3 – Topic & Discussions: Types of Process Models and Appropriate Technology
- Week 4 – Topic & Discussions: Process Model Data Needs

Module 3: Evaluation Model Methods (Week 5-6)

- Week 5 – Topic & Discussions: Criteria and Technology for Evaluation
- Week 6 – Topic & Discussions: Attractiveness, Vulnerability, and Risk

Module 4: Change Model Methods (Week 7-8)

- Week 7 – Topic & Discussions: Phases and Types of Change Modeling
- Week 8 – Topic & Discussions: Specifying Change Models

Module 5: Impact Model Methods (Week 9-11)

- Week 9 – Topic & Discussions: Existing Impact Models and Metrics
- Week 10 – Topic & Discussions: Applying Impact Models and Appropriate Technology I
- Week 11 – Topic & Discussions: Applying Impact Models and Appropriate Technology II

Module 6: Decision Model Methods (Week 12)

- Week 12 – Topic & Discussions: Methods for Determining Decision Models

Final Project: Preliminary Project Proposal (Week 13-15)

- Week 13 – Topic and Discussion: Overview of Preliminary Project Methodology Proposal
- Week 14 – Topic and Discussion: Peer Reviews of Preliminary Project Proposals
- Week 15 – Topic and Discussion: Project Proposals Submissions and Reviews

LEARNING OBJECTIVES

Conceptual Learning Outcomes

- Students will gain an understanding of Geodesign process methods, specifically how to tailor data collection, data analysis, and visualization and communication for a variety of Geodesign project contexts.
- Students will become aware of the various methods and tools available for use in the Geodesign process.
- Students will be able to select appropriate methods and tools for a variety of Geodesign contexts and project types.
- Students will learn the capabilities and limitations of geographic data and its use in Geodesign process.

Technological Learning Outcomes

- Students will gain an understanding of the pros and cons of each piece of software and how to use it appropriately based on the type of data and the software's appropriateness for each phase of a Geodesign process.
- Students will gain an understanding of how to input and transfer data throughout each piece of software as needed in a Geodesign process.
- Students will develop an understanding of how to input and create new data and setup projects in each piece of required software.
- Students will develop an advanced understanding of ArcGIS analysis methods and tools.
- Students will develop an understanding of SketchUP, CityEngine, and CommunityVIZ.

TEXTS

Steinitz, C. (2012). *A Framework for Geodesign*

REPRESENTATIVE LIST OF READINGS

Deming, M. Elen, and Simon Swaffield. *Landscape Architectural Research: Inquiry, Strategy, Design*. Wiley. com, 2011

Maguire, D. J., Batty, M., & Goodchild, M. F. (2005). *GIS, Spatial Analysis, and Modeling*. Redlands, California: ESRI Press.

Mitchell, A. (1999). *The ESRI Guide to GIS Analysis Volume 1: Geographic Patterns & Relationships* (Vol. 1, p. 186). Redlands, California: ESRI Press.

Mitchell, A. (2009). *The ESRI Guide to GIS Analysis Volume 2: Spatial Measurements & Statistics* (Vol. 2, p. 237). Redlands, California: ESRI.

Mitchell, A. (2012). *The ESRI Guide to GIS Analysis Volume 3: Modeling Sustainability, Movement, and Interaction* (Vol. 3, p. 419). Redlands, California: ESRI Press.

STUDENT EVALUATION

There will be no exams in this course. With the exception of topical weekly discussions, all work will be project based. Students will be evaluated on the successful completion of projects designed to engage students in the main topics of each of the six course modules: Representative Models, Process Models, Evaluation Models, Change Models, Impact Models, and Decision Models. In addition to completing weekly discussions and module projects students will provide written evaluations of their projects. The final project is a preliminary project proposal, focusing on Geodesign methodology that will

require students to demonstrate their knowledge of the entirety of the course and each module presented within the course.

ASSIGNMENTS:

Module 1: Representation Model Methods - 10 Points

Define a topic of interest and write about the following: data requirements, identify the types and sources for secondary data, define potential technology requirements for data collection, draft a data collection instrument, including metadata, and compile a sample dataset.

Module 2: Process Model Methods - 10 Points

Using your topic of interest from the previous week and provide a write-up describing and demonstrating the following: describe the appropriate data model, describe and choose the appropriate model, describe the correct data needs, and pilot the model to your topic.

Module 3: Evaluation Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: define appropriate criteria, particularly related to attractiveness, vulnerability, and risk for evaluation models related to your topic, define appropriate technologies, and pilot the evaluation model methods on your topic.

Module 4: Change Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: two rough draft change models that are typical of 'sustainable design' related to your topic, visualize these changes, and define the appropriate technologies for modeling changes.

Module 5: Impact Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: the varying types of impact model content, the scope and precision needed for your impact modeling, define the potential technologies for modeling impacts related to change models, and piloting an impact model based on your two change models.

Module 6: Decision Model Methods - 5 Points

Use your topic of interest from the previous weeks and provide a write-up describing the following: the kinds and appropriateness and weaknesses of values, objectives and requirements typically associated with your topic, levels of decision making typically associated with your topic, and the appropriate scales and levels of decision making.

Final Project: Project Proposal - 100 Points

Preliminary project proposal for capstone project, focused on Geodesign methodology.

Weekly Discussion Participation 75 points

Total Course Points: 250 Points

GRADING POLICY

Qualitative Level Achieved	Letter Grade	% Range
Brilliant; highly inspired; faultless or nearly brilliant; quite inspired.	A	90-100
A level above strong; special in some way; meeting all the minimum requirements going above and beyond.	AB	85-89.99
More than strong; solid with the key required elements present; special in some way; just above the minimal requirements.	B	80-84.99
Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses.	BC	75-79.99
Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired.	C	70-74.99
Barely acceptable; major gaps and weaknesses.	D	60-69.99
Noticeably severe errors; major gaps; weaknesses; more than 50% incomplete; plagiarized; and/or late.	F	0-59.99

LA633

Geospatial Approaches to Conservation and Adaptation

3 credits

Spring 2015

University of Wisconsin

Course modules and goals

This online lecture, discussion, and lab course is designed specifically for students in the GeoDesign Certificate program. Students will explore and use applications of GIS particularly related to landscape ecology, environmental analysis, and conservation design. Engaged students will:

- a. learn/practice how to solve spatial environmental questions;
- b. proficiently apply design thinking toward conservation and adaptation solutions

The course is designed as three sequential modules, each building on the previous, while offering students flexibility to take the modules most relevant to their individual expertise and program:

1. Getting spatial: Emerging and foundational tools

In this module students will:

- a. be able to identify and formulate measurable spatial questions
- b. properly select and use geospatial tools to correctly solve basic spatial environmental questions
- c. proficiently work in the cloud with online spatial data and web maps

2. Getting specific: Landscape evaluation and conservation GIS

In this module students will:

- a. examine/analyze/compare complex conservation problems
- b. diagram/model/infer and form questions around specific conservation problems and scenarios

3. Getting complex: Modeling and adaptation strategies

In this module students will:

- a. synthesize potential environmental scenarios
- b. design/plan strategies for adaptation to landscape change

Prerequisites:

Students should have had an introductory course or work experience with basic GIS concepts and techniques, as well as foundational knowledge of ecology. Less emphasis is placed on recalling specific tools of particular GIS software. Those needing a contemporary update to their skills will benefit from Module 1.

Books & Materials

Module 1 – Getting Spatial:

The GIS Guide to Public Domain Data by Joseph J. Kerski & Jill Clark. 2012, ESRI Press. -- required

Module 2 - Getting Specific:

Conservation Planning by Craighead and Convis 2013, ESRI Press and/or www.conservationtraining.org

Module 3 – Getting Complex:

Conservation Planning by Craighead and Convis 2013, ESRI Press and/or www.conservationtraining.org

We will also supplement readings for some topics and post on the course site.

In addition, lab exercises will be drawn from a variety of sources & posted on Learn@UW, including: GIS Tutorial II: Spatial Analysis Workbook, by D. Allen, and Making Spatial Decisions using GIS: A Workbook, by K.Keranen and R.Kolvoord, both ESRI Press – optional.

Computer lab and software:

All students will be issued student-licensed seats of ArcGIS 10.2. Space for spatial data and student assignments will be shared on a server allocated to this class, in the ClassData\$663 folder. All students will be given access to this server and the software with their lab fee. In addition, for those wishing to work on campus, the Landscape Architecture Department has a regularly updated computer studio in 25 Ag Hall, equipped with department-licensed seats of ArcView 10.2. We will also use UW Moodle Courses to post updates, assignments, readings, etc.

Lab fee: \$30

Additional GIS training/support is offered through LICGF at

http://www.lic.wisc.edu/gis_help.htm

or ESRI's Virtual Campus – selected courses available to UW students free. Contact Math Heinzl for course options & codes at: wheinzl@wisc.edu

Course Format

The **lecture** of each week will present the current topic through an interactive online lesson. Material will be drawn from the text plus supplemental sources. Students are expected to complete the online lecture by COB Monday.

Lecture will be followed by an online **discussion** in which we will follow-up with responses to questions or summaries from the online lecture, provide more specific examples, and in many cases there will be a demo or tips for the lab assignment.

Weekly **lab** exercises provide practice on the given topic through a hands-on **exercise**. Please plan your lab time in conjunction with the TA's virtual office hours. Typically you should be able to complete ~50% or more of the weekly assignments in 2hr, (so allow 2-3 hours outside of virtual lab to complete). You will upload completed lab exercises the following week.

Challenges are longer, independent problem-solving exercises intended to bring together key concepts and tools from each of the modules. Challenges take the place of exams or projects/papers in this class and are the culminating assessment for each module. All instructions and any data included with the Challenges will be posted on the course Moodle site, and students will submit completed Challenges to an online dropbox by the stated due dates.

Readings for each week/topic will be noted as one of 2 categories:

^P – primary reading = comes from the primary class text & is necessary to understand harder concepts, especially for the Challenges.

⁵ – supplemental reading = supplements topics for lecture not covered in primary text

Supplemental readings (chapters from books or articles) will be given as citations and will be available usually as a pdf through UW Moodle course site. Review readings will be offered as a citation when pertinent.

Grading

Weekly exercises (12) – 10 pts each 120

Challenges (3) – 30 pts each 90

Online participation, effort, & peer support 30

240 total

Qualitative Level Achieved	Letter Grade	% Range
Brilliant; highly inspired; faultless or nearly brilliant; quite inspired.	A	90-100
A level above strong; special in some way; meeting all the minimum requirements going above and beyond.	AB	85-89.99
More than strong; solid with the key required elements present; special in some way; just above the minimal requirements.	B	80-84.99
Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses.	BC	75-79.99
Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired.	C	70-74.99
Barely acceptable; major gaps and weaknesses.	D	60-69.99
Noticeably severe errors; major gaps; weaknesses; more than 50% incomplete; plagiarized; and/or late.	F	0-59.99

Illness, travel, & late work: All work must be completed or submitted online by the scheduled due date. If you know of outside travel or work commitments near due dates, plan to have your work completed ahead of time, or talk with me well in advance. In the case of unexpected illness or emergency that absolutely prevents you from completing work on time, contact me or your TA ASAP. Otherwise, 20% will be subtracted from grade for each day an online lesson, lab exercise or challenge is late.

Engaged participation: We will monitor participation in the online lessons and discussions. Lab work should be completed independently but you are welcome to ‘call a friend’ for peer support. Also, assistance from instructors will be managed within the stated timeframes (e.g. virtual office hours & lab time).

Schedule of Topics

1. Getting spatial! Emerging & foundational tools
2. Getting specific - Landscape evaluation and conservation GIS
3. Getting complex - Modeling & adaptation strategies

Module I – Getting Spatial! Emerging and Foundational Tools

Lesson Date Topic

- Jan 22 Introduction to course

Lesson: get acquainted with course, software, server, & lab protocol

Reading: ^P Kerski & Clark – chp 1, 2

Lab exercise: take pre-quiz of existing knowledge

Review: Understanding Map Projections and Coordinate Systems

Virtual Campus course (ESRI).

1. Jan 27, 29 Spatial data: models & portals

Reading: ^P Kerski & Clark – chp 3-5

Lab exercise 1: spatial data models and portals

2. Feb 3, 5 Asking spatial questions; Modeling a spatial problem

Reading: ^P Kerski & Clark chp 7, Model builder documentation (TBD)

Lab exercise 2: geoprocessing and model builder;

Review: ^R Bolstad chp 9 – Basic spatial analysis

3. Feb 10, 12 Citizen Data; In the cloud with ArcGIS.com;

Reading: ^P Kerski, chp 8-9, ^S ArcGIS.com documentation (pdf or link)

Lab exercise 3: mobile & online GIS

4. Feb 17, 19 Evaluating suitability and capability; Emerging directions in GIS

Reading: ^P Kerski, chp 10; Chapter 2 (Priority Places – Asheville, NC) in GeoDesign case study book <http://gis.ashevillenc.gov/mapasheville/priorityplaces/>

Lab exercise 4: weighted overlay

Review: ^R Kennedy chp 7

CHALLENGE 1 - 30 pts

Module II – Landscape evaluation and conservation GIS

Lesson Date Topic

5. Mar 3, 5 Land use and landscape change

Reading: ^PConsPlan'g chp 4-5; ^SInterpolating Surfaces (pdf)

Lab exercise 5: assessing change

6. Mar 10, 12 Evaluation and metrics

Reading: ^PGergel chp 7(pdf)

Lab exercise 6: Fragstats

SPRING BREAK

7. Mar 24, 26 Spatial stats in ArcGIS

Reading: ^PWong & Lee 1.1-1.3; 6.6 + appendix (pdf)

Lab exercise 7: quantifying patterns

8. Mar 30, Apr 1 Selecting species; habitat assessment

Reading: ^PConsPlan'g chp 6-7;

Lab exercise 8: habitat assessment



CHALLENGE 2 –30 pts

Module III –Modeling and Adaptation

Lesson DateTopic

9. Apr 14, 16 Mapping habitat cores & assessing connectivity

Reading: ^PConsPlan'g chp 9-10; ^SNikolakaki article (pdf)

Lab exercise 9: biodiversity assessment

10. Apr 21, 23 Planning for viability and optimization

Reading: ^PConsPlan'g chp 11-12;

Lab exercise: Reserve design; Goodall & GIS

11. Apr 28, 30 Landscape scenario modeling

Reading: ^PTBD

Lab exercise 10: 'spatial labs'

12. May 5, 7 Projecting trends and designing for adaptation

Reading: ^PConsPlan'g chp 13-15;

Lab exercise: 'spatial labs'

CHALLENGE 3 - 30 pts

LA 671 GIS and Geodesign Applications in Sustainability and Resiliency

Course overview: This course explores the ways GIScience concepts and analysis methods can support sustainability and resiliency planning and implementation. A brief history and development of the sustainability/resiliency movements establishes context, motivation and priorities of initiatives and connects with modes of Geodesign that support community awareness and action. Characteristics of public participation GIS (PPGIS) frame the situatedness of GIS and Geodesign engaged for community empowerment. Discovery of sustainability issues, spatial data and analyses follows a conceptual and geographical trend from local to regional to global scales. These include population density, land cover change, urban growth/sprawl, transportation, walkable neighborhoods, water resources, green infrastructure, landscape prioritization, footprint analysis, and climate change. Geodesign approaches include measurement of indicators/change, resource optimization, resource siting, least cost and proximity. Spatial data surveyed through the course comprise US decennial census, road networks, land use, parcels, STRM, and utilities. Experience with these methods and data resources takes place in eight laboratory exercises presented regularly through the semester. The situatedness of sustainability initiatives, GIS implementation, and the GIS consultant's responsibilities are revisited repeatedly to better appreciate the dynamism of technological support for socially based quality of life decision-making.

Prerequisites: 630, 631

Instructor commitment: The instructor will a) present clear, engaging, challenging lecture/lab presentations; b) keep the course on schedule; c) challenge each student to question; d) conduct fair and equitable evaluation of student work; e) encourage student participation; f) be available and accessible by email and office hours or appointments; g) be responsive to student needs/requests.

The instructor will not a) provide *the correct* answer without students' critical engagement of the question; b) scale grades to an established curve; c) pretend to teach; d) let students pretend to learn.

Student commitment: Students are required to engage with the course through regular online attendance, active participation, and successful completion of all assignments. Students are also expected to read all assigned materials and to ask informed questions regarding the subject matter. Students having difficulty completing the course work should consult with the instructor before falling behind.

Required text: The course text is *GIS for Sustainable Development*, edited by Michele Campagna and Roseland, M. *Toward sustainable communities*. See UWSP text rental: <http://www.uwsp.edu/centers/textrental/index.asp> for details. An electronic copy of *GIS for Sustainable Development* is linked [here](#). Readings from Pervis and Granger *Exploring Sustainable Development: Geographical Perspectives*, Bell and Morse *Sustainability Indicators - Measuring the Immeasurable*, Wise and Craglia *GIS and Evidence Based Decision Making*, and other reading assignments will be available through [UWSP Library](#)

[E-reserve](#) and the course D2L site. Expected dates for completion of reading assignments are listed with the lecture/lab schedule. Knowledge and understanding of required readings is expected prior to scheduled lecture and lab instruction and demonstrations. Learning outcomes from these required readings will be identified during lecture and lab presentations.

Desire2Learn (D2L): The course D2L page is a resource for lecture, lab and assignment management. Students are expected to be familiar and proficient with all of D2L features and functions. Lecture/lab outlines are linked to online content, required readings and related assignments. Note: D2L course resources are not a substitute for attending lecture or lab. The lecture/lab content on D2L are not self-explanatory and do not support stand-alone self study. Drop boxes are used for submission of all course deliverables. Discussion forums for lecture, lab assignments and exams are open dialogs for questions and answers and all students are encouraged to participate or observe the postings because these conversations extend the dialog for better understanding of the course learning outcomes.

Software: ESRI's ArcGIS software with extensions will be employed for the applied exercise portion of the class. The same are used for lecture demonstrations.

Lectures: Lectures introduce the core geographic information science concepts and practical Geodesign applications that are further developed in the lab assignments. These build upon and extend material introduced in the required readings and concepts presented in prior lecture/lab meetings. They are the richest source of concise and accessible insight and knowledge needed to complete assignments and realize the course learning outcomes.

Labs: The course features six exercises for practical application of the course concepts and GIS/Geodesign operations. These will be introduced in lecture and some lecture meetings will be dedicated to working on the lab assignments. Exercises consist of a set of software operation instructions and questions that address the process and meaningful outcome. Each exercise is worth nine points; exercise questions are short answer worth 1-3 points each. In most cases the exercises will require more time to complete than available in two to three lecture periods dedicated to the lab assignments (~100 min), students should anticipate some additional time commitment. Exercises are due generally 7-10 days after they are assigned and submitted through D2L drop boxes as a Word document. Exercises not submitted by the dropbox due date will not be graded. Exercise outcomes will reviewed in lecture the week after the due date.

Exercise	Assigned	Due
Lab 1 Demographic change	2/11	2/25
Lab 2 Neighborhoods	2/25	3/11
Lab 3 Urban morphology and sprawl	3/11	3/9
Lab 4 Transportation and emissions	3/19	4/1

Lab 5 Green infrastructure	4/22	5/6
Lab 6 Footprints and foodsheds	5/6	5/13

Exams: The midterm and final exams are each worth 15 points. These are mostly short answer with some T/F and multi-choice. Students receive a list of learning outcomes covered on the exam a week before the exam date. Example question will be introduced in lecture/lab presentations. Time management during the exams is important; delay will make it difficult to answer all questions completely. Students who do not take the midterm and final exams are not eligible for a passing grade.

Extra credit: Any student who wishes to improve their grade for a disappointing assignment or exam may request an extra credit assignment to make up for lost points. Extra credit points may not exceed the maximum points of the original assignment.

Evaluation: Final grades are based on points earned for successful completion of the lab exercises, and exams.

70% Laboratory exercises - Six exercises each worth 12 points.
 15% Midterm - 20 points.
 15% Final - 20 points

Grades for all assignments will be posted to D2L. Be aware that the total points for the lab assignments and exams is 100, each point is worth one percent of the final grade (See grading scale below). Grades will not be curved except in extenuating circumstances. All students are eligible to earn an A; grades are not competitive.

Grading scale:

Qualitative Level Achieved	Letter Grade	% Range
Brilliant; highly inspired; faultless or nearly brilliant; quite inspired.	A	90-100
A level above strong; special in some way; meeting all the minimum requirements going above and beyond.	AB	85-89.99
More than strong; solid with the key required elements present; special in some way; just above the minimal requirements.	B	80-84.99
Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses.	BC	75-79.99
Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired.	C	70-74.99
Barely acceptable; major gaps and weaknesses.	D	60-69.99
Noticeably severe errors; major gaps; weaknesses; more than 50% incomplete; plagiarized; and/or late.	F	0-59.99

Plagiarism: Plagiarism is defined in [Chapter 14 of the UWSP Rights and Responsibilities](#) section 14.03. You plagiarize if you use someone else's ideas, even if you paraphrase them, and do not cite them. All assignments submitted to D2L drop boxes are evaluated with Turnitin.com for plagiarism. Answers to exam questions that are too similar to be clearly original work will not receive a grade. See <http://www.plagiarism.org> for more explanation and steps you can take to avoid plagiarism.

Disabilities: Students with disabilities or learning requirements of any nature should meet with the instructor during the first week of classes to address satisfactory accommodation.

"Simply put, the greater the student's involvement or engagement in the academic experience of college, the greater his or her level of knowledge acquisition and general cognitive development" (*How College Affects Students*, Pascarella and Terenzini, 1991)

Getting help and how to succeed:

- *Attend lecture & lab meetings:* Regular lecture and lab section attendance is the single most effective investment toward success in this course. Lecture material builds upon and goes beyond the required readings as the foundation for the lab exercises. You should anticipate difficulty with timely completion of the lab exercises if you miss lecture/lab and do not recover.
- *Follow the learning outcomes:* The learning outcomes listed on the lecture and lab pages are the take home concepts of the course. They are what you need to know to succeed with GIS and are the basis for the lab exercises and exams.
- *Notetaking:* Taking notes during class meetings is a proven means of knowledge retention. Notes also help identify omissions and areas of difficulty during study and office hour consultations. Students are encouraged to share and compare notes with other students to improve understanding and learning.
- *Participate:* You are *always* encouraged to participate in class and on the D2L discussion forums by asking questions and contributing observations and comments. Active participation will improve your learning quality, quantity and proficiency.
- *Meet with the instructor:* The instructor is available to address your individual learning needs during office hours and by appointment. Scheduled office hours are open for drop-in consultation although prior scheduling is appreciated. Office hour topics include but are not limited to: a) further explanation of lecture material and lab exercises; b) software tech support; c) project design and troubleshooting; d) exam preparation; e) grading and evaluation discrepancies. Office hours and appointments

are also open for study groups or project teams to focus on selected questions.

- *Submit assignments on time:* Prompt submission of required assignments by their due date is required to receive credit.
- *Read the required readings:* Do this before the lecture/lab when they are discussed. Familiarity with the required reading is expected and serves as the foundation for lecture presentations.
- *Exam preparation:* Pay attention to the learning outcomes associated with the lectures and labs because these are basis midterm and final. Make sure you know what is expected and practice answering the sample exam questions provided.
- *Do your own work:* Any lab exercise deliverable or exam question with answers that are too similar to others' work to be unmistakably original will not receive a grade. Please take care to insure that your work is yours alone and not accessible to other students. All assignment deliverables are checked with [Turnitin.com](https://www.turnitin.com). See the section on plagiarism below.

Week	Lectures and required reading
1	<p>Welcome, syllabus and expectations</p> <p>Callicott: "Environmental Ethics"</p> <p>Edwards: The Birth of Sustainability</p> <p>Oden, M.D. Equity: The Forgotten E in Sustainable Development</p> <p>Albert A. Bartlett. Reflections on Sustainability, Population Growth, and the Environment p 1-12</p> <p>Roseland, M. Toward Sustainable Communities</p> <p>Cumming, G.S. et al. Complexity Theory for a Sustainable Future: Environmental Asymmetries</p> <p>McKibben, B. Eaarth: A New World</p> <p>Climate change: Big problem for Big Oil's deniers</p> <p>Lomborg, B. The Skeptical Environmentalist. Things are getting better</p> <p>Resilience: Walker and Salt: Ch 1</p>
2	<p>Purvis, M. & Grainger, A. (2004) Geography and Sustainable Development</p> <p>Campagna, M. GIS for sustainable development, Chapter 1 p3-22 in 'GIS for Sustainable Development'</p> <p>Roseland, M. Tools for Community Sustainability</p> <p>Westman, W.E. (1985). Ecology, impact assessment, and environmental planning. New York: Wiley. pp. 201-268.</p> <p>Foster et al (2005) Rethinking the Natural Capital Metaphor: implications for sustainability planning and decision-making</p> <p>Costanza et al. The value of the world's ecosystem services and natural capital</p>

	<p>Mulder, K., Costanza, R., & Erickson, J. (2006). The contribution of built, human, social and natural capital to quality of life in intentional and unintentional communities.</p> <p>Bell, S., & Morse, S. (2008). Sustainability indicators Ch. 1</p> <p>Bell and Morse 'Glass Ceiling' 2001</p> <p>Black, W. Indicator-Based Planning</p> <p>Litman, T. (2011) Well measured: Developing indicators for sustainable and livable transport planning.</p> <p>Sustainable Seattle (1998) Indicators of sustainable community.</p> <p>Sustainable Communities Index</p> <p>Organization for Economic Co-operation and Development (OECD). Constructing a composite indicator. p19-48 in 'Handbook on Constructing Composite Indicators'</p>
3	<p>Purvis, M. & Grainger, A. (2004). The role of spatial scale and spatial interaction in sustainable development</p> <p>Webber, R. GIS and Evidence-Based Policy Making: Geodemographics</p> <p>Guzmán, J. M. Chapter 12: The Use of Population Census Data for Environmental and Climate Change Analysis (p192-205)</p> <p>Census reference manual -The role of geography p1-5</p> <p>Census reference manual - Geographic overview p1-22; p31-33</p> <p>Census reference manual - Local census statistical areas committees and other local assistance p1-4</p> <p>Census reference manual - Tracts and blocks numbering areas p.1-8</p> <p>Census reference manual - Census blocks and block groups p.1, 7-11</p>
4	<p>Lab1 - Demographic and economic indicators and relationships, the Census</p>
5	<p>Neighborhoods, walkability and bikability</p> <p>Wise and Craglia Ch.2 - Urban neighborhood pattern recognition</p> <p>Evaluating neighborhoods (Rybarczyk and Mohapatra)</p> <p>Cycle tracks</p> <p>Register, R. Ecocity zoning</p> <p>M.J. Barnsley and S.L. Barr Inferring Urban Land Use from Satellite Sensor Images Using Kernel-Based Spatial Reclassification (SPARK)</p>
6	<p>Lab2 - Detecting neighborhoods, walkability service zones</p> <p>Linear point patterns, point density, intersection density Wise and Craglia Ch 2</p> <p>Neighborhoods as conforming to a definition or based on a series of relationships.</p>

	<p>(Rybarczyk and Mohapatra)</p> <p>Point density, nearest neighbors, k-means clusters</p> <p>Clustering tests in R</p>
7	<p>Sprawl, urban morphology, land availability and use</p> <p>Daniels, T. Divided We Sprawl: The Role of State and Local Governments</p> <p>Roseland Chapter 10 'Land use and urban form'</p>
8	<p>Lab 3 - Urban morphology, sprawl and land use capacity</p>
9	<p>Midterm review</p> <p>Exam</p> <p>Debrief</p>
10	<p>Spring break!</p>
11	<p>Sustainable transportation, transportation sustainability, mobility</p> <p>Black, W. The Problem of Sustainability in the Transport Sector</p> <p>Toor and Havlick Transportation and sustainability in campus communities</p> <p>Roseland Chapter 9 'Transportation planning and traffic management'</p>
12	<p>Lab 4 - Transportation and emissions</p>
13	<p>Green infrastructure and environmental justice</p>
14	<p>Lab 5 - Green infrastructure</p>
15	<p>Footprints and food sheds</p> <p>Klinsky, Sieber & Meredith. Connecting Local to Global: Geographic Information Systems and Ecological Footprints as Tools for Sustainability</p>
15	<p>Lab 6 - Footprints and foodsheds</p> <p>Final review</p>
17	<p>Final exams</p>

LA 634 Geodesign Capstone Project

Course Overview

This capstone course is the culmination of the year-long Geodesign Certificate Program. It is designed for students to demonstrate the skills and knowledge that they have acquired in the four prerequisite courses by resolving a “real world” geodesign problem. Students will work with a mentor on projects of their own choosing as agreed upon by their mentor and the Capstone Project course coordinator.

Required Text:

McElvaney, Shannon. Geodesign: Case Studies in Urban and Regional Planning. Esri Press, Redlands. 2012

Steinitz, C. (2012). *A Framework for Geodesign*

Prerequisites:

Intro to Geodesign LA630

Geodesign Methods LA631

Sustainability and Resilience in Geodesign LA 671

Geospatial Approaches to Conservation Design and Adaptation LA 633

Course Goals and Learning Outcomes

- 1) Students will be able to articulate a design problem by identifying and analyzing the conditions, forces, and issues related to their geodesign project.
- 2) Students will be able to compile appropriate/relevant data for their selected geodesign project
- 3) Students will be able to identify and critically review tools processes and methods necessary to solve their geodesign problem.
- 4) Student will be able to successfully apply chosen processes, methods, and tools to solve their geodesign problem.

Project Requirements:

Each student

- must have an approved capstone project before registering for the Capstone Course
- is responsible for finding their own capstone project
- must select a “real world” project

- must include data collection, data analysis, geodesign evaluation models, and visual representation as the focus of their project
- is responsible for assembling a capstone committee which will consist of:
 - A Geodesign Program faculty member
 - A project supervisor/client
 - The Capstone Course Coordinator
- must meet with client/project supervisor regularly
- is responsible for meeting weekly with faculty advisor and/or the Capstone Course Coordinator on progress and for guidance
- Each student will electronically submit one final report document which will include all text, images, maps, and graphics organized in logically and presented in a professional manner

Process/Timeline:

Prior to course enrollment:

Find a capstone project and identify a project supervisor/client

Write capstone project proposal

Meet with program faculty member to evaluate/approve project

Register for the Capstone Course

Week 1 -Submit Preliminary Project Abstract

Week 2 - 3 – Meet with client and faculty advisor

Week 5 – Submit Preliminary Project Draft

Week 6 – 7 - Meet with client and faculty advisor

Week 8 - Submit completed electronic report to Learn@UW dropbox.

Obtain faculty grade/approval of final project

Report Requirements

Format: Abstract, Introduction, Methods, Results, Conclusions/Summary

Abstract

- Concise (500 word or less) project description focusing scope, methods, and conclusions

Introduction

- Problem Statement
- Project Goals
- Project Overview
- Report Organization

Methods

- Critical Analysis of data, processes/methodologies and tools as they relate to each students individual project
- Discussion of what data was collected, how, and from what sources
- Discussion of how project data is organized
- Discussion of processes and methods applied for data analysis
- Discussion of application of evaluation models

Results

- Discussion of results of analysis and evaluation
- Discussion of proposed design, planning, and/or management solutions based on results of the analysis and evaluation methods
- Graphic representation of spatial components of design, planning, and/or management solutions

Conclusions/Summary

Grading

Week 1 Abstract – 10 points

Week 5 Project Draft – 50 points

Week 8 Final Project Report – 100

Grade Scale

Qualitative Level Achieved	Letter Grade	% Range
Brilliant; highly inspired; faultless or nearly brilliant; quite inspired.	A	90-100
A level above strong; special in some way; meeting all the minimum requirements going above and beyond.	AB	85-89.99
More than strong; solid with the key required elements present; special in some way; just above the minimal requirements.	B	80-84.99
Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses.	BC	75-79.99
Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired.	C	70-74.99
Barely acceptable; major gaps and weaknesses.	D	60-69.99
Noticeably severe errors; major gaps; weaknesses; more than 50% incomplete; plagiarized; and/or late.	F	0-59.99

Appendix C: Instructor CVs

Janet Silbernagel, PhD

Program Director, Environmental Conservation Professional Masters
Nelson Institute for Environmental Studies
Professor, Department of Landscape Architecture
University of Wisconsin-Madison
(608) 890-2600, Email: jmsilber@wisc.edu
Web: <http://faculty.nelson.wisc.edu/silbernagel/index.php>

Education:

Ph.D., Michigan Technological University, Forest Science & Landscape Ecology, 1996
M.S., Michigan Technological University, Forest & Cultural Ecology, 1993
B.S., University of Wisconsin-Madison, Landscape Architecture, 1988

Professional Positions:

2013-present, Professional Programs Director, Nelson Institute for Environmental Studies
2010-2013, Chair, Conservation Biology and Sustainable Development program, Nelson Institute for Environmental Studies
2012-present, Professor, University of Wisconsin-Madison, Nelson Institute for Environmental Studies and Department of Landscape Architecture
2003-2012, Associate Professor, University of Wisconsin-Madison, Nelson Institute for Environmental Studies and Department of Landscape Architecture
1999-2003, Assistant Professor, University of Wisconsin-Madison, Nelson Institute for Environmental Studies and Department of Landscape Architecture
1995-1999, Assistant Professor, Washington State University, Department of Horticulture and Landscape Architecture
1995-1995, Research GIS Assistant, United States Department of Agriculture, Forest Service, Rocky Mountain Research Station
1994-1995, Research GIS Assistant, Michigan Technological University, School of Forestry and Wood Products
1993-1995, Landscape Ecologist, Hiawatha National Forest; responsible for ecological classification and mapping with Lake States partners
1990-1993, Landscape Architect, Hiawatha National Forest
1987-1990, Landscape Architect, Allegheny National Forest
1986-summer, Landscape Architectural Intern, Dane County Regional Planning Commission

Scholarship:

Trained as a landscape ecologist, I work on regional conservation strategies using geospatial analysis and cultural insights. Primary research includes support from The Nature Conservancy to build scenarios of forest conservation effectiveness in a changing climate. Another study funded by NOAA Sea Grant, develops and tests innovative spatial literacy tools for WI Coastal Communities. Meanwhile, I collaborate with the International Crane Foundation to expand spatial studies for crane conservation both here and in China.

Conservation Leadership:

Program Director, Environmental Conservation Professional Masters, for Nelson Institute, UW-Madison, to begin Summer 2014.
 Design and development of professional programs for Nelson Institute, UW-Madison.
 Program Chair, Conservation Biology and Sustainable Development Program, Nelson Institute for Environmental Studies, UW-Madison. 2010-present.
 Executive Committee and Advisory Board, US Chapter of the International Association of Landscape Ecologists (US-IALE).
 Awards Committee Chair, US Chapter of the International Association of Landscape Ecologists (US-IALE). 2005-2008 (chair), 2003-04 (committee). Appointed by US-IALE president.
 Science Advisory Committee, The Nature Conservancy – WI Chapter. 2006-present. Invited by state chapter Science Director.
 Leopold-Riley Cooperative Conservation Project. Leader for community-based “Riley friends” group, in collaboration with Natural Heritage Land Trust and Dane County Parks Commission, 2005-present.
 Wisconsin Climate Change Initiative, participating member, 2009-present

Landscape Research Grants:

Cranes, people, and hydrological alterations in a pulse wetland system: Scenarios of human-ecological dynamics for Poyang Lake, PR China. (in revision). NSF-CNH Interdisciplinary Team Exploratory Research Project (\$250,000).
Geotools for Fostering Citizen Engagement and Understanding of the Socio-environmental Complexities of Great Lakes Coastal Estuaries. Feb 12-Jun 14. UW Sea Grant (\$234,868). PI: Silbernagel & Robinson (UW Extension).
Together for the Planet: Community Environmental Scholars Program and S-STEM, 2012-2017, NSF-S-STEM (\$598,000), Co-PI (PI: Catherine Middlecamp).
Effective Strategies? Scenarios to Inform Broad-scale Forest Conservation, Jan 09-Dec 12, RJKose-The Nature Conservancy, in collaboration with TNC Central and Southern Regional Science teams (\$149,000).
Stressor Gradients and Spatial Narratives of the St. Louis River Estuary, Feb 10-Jun 12, UW Sea Grant joint proposal with Natural Resources Research Institute, Univ of MN-Duluth (\$215,000)
Attaining Food Security and Conserving Biodiversity via Bilateral Knowledge Transfer Between Universities and Practitioners. 2011-2012. Morgridge Center for Public Service (\$40,000).Co-PI: Silbernagel (PI: A. Treves).
Village of LaFarge Recovery Plan 2011-2012. Kickapoo Valley Reforestation Fund (\$24,000), PI: Silbernagel
Wild Rice Ecology and Traditional Life-ways: Assessing Landscape Changes, Threats, and Stewardship, Jul 2004 to Oct 2007; UW Graduate School, US Forest Service North Central Research Station, and USDA Hatch (\$56,000).
The Landscape Tapestry of Cultivation in Wisconsin's Lake Superior Region: An Exhibit, from 2002 to 2005; Wisconsin Humanities Council (\$15,000).
The Forest History and Spatial Patterning of American Indian and Euro-American Maple Sugaring Forests of the Upper Great Lakes Region, Oct 2001 to Sep 2004; UW Graduate School and USDA McIntire-Stennis (\$107,000).
Plant-Pollinator Landscapes: Bumblebee Foraging Patterns within Spatially-heterogeneous Natural Kettle Bogs and Cultivated Cranberry Bogs, May 2000 to Aug 2002; USDA Hatch (\$45,000).

Selected Papers and Publications:

- Nixon, K. J. Silbernagel, J. Price, N. Miller, and R. Swaty. *in revision*. Habitat availability for multiple avian species under modeled alternative conservation strategies for the Two Hearted River Watershed in Michigan's Upper Peninsula, USA. *Journal of Nature Conservation*
- Silbernagel, J., Host, G., Hagley, C., Fortner, R., Axler, R., Danz, N. Hart, D., Axler, M., and A. Drewes. *in draft*. Linking place-based science to people through spatial narratives of coastal stewardship. *Journal of Coastal Conservation*.
- Silbernagel, J. 2013. Coastal communities create their story through Spatial Narrative Geotools. *Proceedings, Esri User Conference*, July, San Diego.
- Smith, V., R. Greene, and J. Silbernagel. 2013. The social and spatial dynamics of community food production: A landscape approach to policy and program development. *Landscape Ecology*. doi: [10.1007/s10980-013-9891-z](https://doi.org/10.1007/s10980-013-9891-z)
- Drewes, A. and J. Silbernagel. 2012. Defining the spatial dynamics of wild rice landscapes for community-based conservation. *Ecological Modeling*. Available online at: [doi:10.1016/j.ecolmodel.2011.09.015](https://doi.org/10.1016/j.ecolmodel.2011.09.015).
- Price, J., J. Silbernagel, N. Miller, R. Swaty, M. White, K. Nixon. 2012. Eliciting expert knowledge to inform landscape modeling of conservation scenarios. *Ecological Modeling*, doi: [10.1016/j.ecolmodel.2011.09.010](https://doi.org/10.1016/j.ecolmodel.2011.09.010).
- Silbernagel, J., J. Price, R. Swaty, and N. Miller. 2011. The Next Frontier: Assessing Forest Conservation Strategy Effectiveness. In: *Landscape Ecology and Forest Management: Challenges and Solutions in a Changing Globe*, (ed.s Chao Li, R. LaFortezza, & J. Chen), Springer.
- Natori, Y., J. Silbernagel and M. S. Adams 2011. Biodiversity Conservation Planning in Rural Landscapes in Japan: Integration of Ecological and Visual Perspectives. In: *Research in Biodiversity - Models and Applications*, (Ed. Igor Ya. Pavlinov), ISBN: 978-953-307-794-9, InTech, Available from: <http://www.intechopen.com/books/research-in-biodiversity-models-and-applications/biodiversity-conservation-planning-in-rural-landscapes-in-japan-integration-of-ecological-and-visual>.
- Silbernagel, J., L. Yang, W. Xu. 2009. *Strategies for landscape recovery and Giant Panda conservation in the 2008 Sichuan earthquake region, PR China*. Paper for Society for Conservation Biology meeting, Beijing, July
- Silbernagel, J., J. Chen, B. Song, and A. Noormets. 2006. Conducting sound ecological studies at the landscape scale: Research challenges. In *Ecology of Hierarchical Landscapes: From Theory to Application*, New York, Nova Science Publishers Inc., 333pp. ISBN=1-60021-047-3
- Silbernagel, J. 2005. Bio-regional patterns and spatial narratives for integrated landscape research and design. In *From Landscape Research to Landscape Planning: Aspects of Integration, Education, and Application*, Dordrecht, Berlin, Heidelberg, Springer, 440pp.
- Silbernagel, J. and W. G. Hendrix. 2004. Sunburn on the vineyard: Terroir and the sustainability of juice grapes in an arid climate. *International Journal of Agricultural Sustainability*, 1(2):89-94.
- Song, Bo, J. Chen, and J. M. Silbernagel. 2004 Three-dimensional canopy structure of an old-growth Douglas-fir forest, *Forest Science*, 50(3):376-386.
- Silbernagel, J. 2003. Spatial theory in early conservation design: Examples from Aldo Leopold's work. *Landscape Ecology* 18:635-646.
- Thomas, M. M. and J. M. Silbernagel. 2003. The Evolution of a Maple Sugaring Landscape on Lake Superior's Grand Island. *Michigan Academician* 35(2):135-158.
- Silbernagel, B. and J. Silbernagel. 2003. Tracking Aldo Leopold through Riley's farmland. *Wisconsin Magazine of History*. Summer.

Travis Lee Flohr

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Website: <http://www.iecostudio.com>

Summary of Qualifications

- **Six years** professional experience
- Over **5 years** of curriculum development in Geodesign, geographic information systems (GIS), landscape architecture, environmental design, and urban and regional planning.
- **Extensive computer training:** ESRI's ArcGIS Desktop, Esri CityEngine, Adobe Master Collection, AutoCAD, open-source GIS (Grass and QGIS), web GIS (Google Earth, Google Maps, PostGIS/PostGRES), course management software (D2L, Blackboard, Blackboard Connect, Moodle, Canvas), web development (HTML, HTML5, JavaScript, PHP, SQL, Drupal, Wordpress), SPSS, Microsoft Office, SketchUP, and e-on software VUE.

Education

Ph.D.

The University of Colorado Denver
Fall 2011 - to present

Doctoral Program in the College of Architecture and Planning with an emphasis in Design and Planning, Sustainable and Healthy Environments. (Advisor: Brian Muller, Ph.D.)

MSLA

The Pennsylvania State University
2008 - December 2011

Master of Science in Landscape Architecture - Thesis:
Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning.
(Advisor: Timothy Murtha, Jr, Ph.D.)

Professional BLA

The Pennsylvania State University
1997 - 2002

Professional Bachelors Degree of Landscape Architecture.

Teaching Experience

Faculty Associate

Geodesign Program

University of Wisconsin-Madison
Spring 2014

Geodesign Capstone

Responsibilities: Development of new course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, workshops, video tutorials, and grading).

Geodesign Program

University of Wisconsin-Madison
Spring 2014

Geodesign Methods

Responsibilities: Development of new course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, workshops, video tutorials, and grading).

Geodesign Program

University of Wisconsin-Madison
Spring 2014

Geodesign Program Proposal Development

Responsibilities: Develop and gain governance approval for a new Post-Baccalaureate Capstone Certificate in Geodesign, including course approvals and memo of understanding between UW-Madison and UW-Stevens Point.

Full-Responsibility Instructor

LDAR 6686

The University of Colorado Denver
Fall 2013

Introduction to GIS (Graduate)

Responsibilities: Development of new course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, workshops, video tutorials, and grading).

MURP

The University of Colorado Boulder
Summer 2013 – Fall 2013

Planning Workshop (Graduate)

Responsibilities: Created assignments, scripted, developed, and delivered tutorial videos related to planning and design methodologies for an e-learning hybridization of planning studio instruction for the following software: ESRI ArcGIS

Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

	Desktop, Adobe Photoshop, Adobe Illustrator, Adobe InDesign, and Trimble SketchUP
ENVD 3152 The University of Colorado Boulder Summer 2012	<i>GIS (Undergraduate)</i> Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.
ENVD 4352 The University of Colorado Boulder Spring 2012	<i>Geodesign and the Web (Undergraduate)</i> Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.
LArch 151 The Pennsylvania State University Fall 2010	<i>Introduction to Design Visualization – freehand and perspective drawing (Undergraduate)</i> Responsibilities: Developed a course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, and grading).
Accreditation	
Accreditation Assistant The Pennsylvania State University Fall 2010	<i>The Pennsylvania State University Landscape Architecture Self Evaluation Report for Bachelor Degree Accreditation</i> Responsibilities: Compiled and produced the accreditation report and exhibit design.
Teaching Assistant/Instructor (facilitated curriculum development and delivery, but was not instructor of record).	
ENVD 4363 The University of Colorado Boulder Maymester 2013	<i>Open Space Systems Studio (Undergraduate)</i> Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips.
ENVD 2130 The University of Colorado Boulder Spring 2013	<i>Landscape Design Studio (Undergraduate)</i> Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. GIS lectures, workshops, and video tutorials).
LDAR 5502 The University of Colorado Denver Spring 2013	<i>Landscape Design Studio II (Undergraduate)</i> Responsibilities: Developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery for GIS instruction (i.e. GIS lectures, workshops, video tutorials, and grading).
ENVD 3124 The University of Colorado Boulder Fall 2012	<i>Issues in Planning History (Undergraduate)</i> Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures and grading).
ENVD 2120 The University of Colorado Boulder Fall 2012	<i>Environmental Urban Design Lab/Studio: Sustainable Design (Undergraduate)</i> Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. GIS lectures).
LArch 332 The Pennsylvania State University	<i>Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)</i>

Updated 2.18.14

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Spring 2010	Responsibilities: Filled in for a professor on emergency leave. : Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. lectures and grading).
Teaching Assistant	
ARCH 3114 The University of Colorado Boulder Fall 2013	<i>Architectural History (Undergraduate)</i> Responsibilities: Grading, office hours, and managing course management software.
ENVD 2120 The University of Colorado Boulder Fall 2010	<i>Environmental Urban Design Lab/Studio – Sustainable Design (Undergraduate)</i> Responsibilities: Developed and delivered GIS tutorial demonstrations, office hours, and compiled GIS data.
LArch 321 The Pennsylvania State University Fall 2009	<i>Regional Site Planning and Design Seminar (Undergraduate)</i> Responsibilities: Developed courses reading assignments, reading list, grading rubrics, and grading student assignments.
LArch 311 The Pennsylvania State University Fall 2009	<i>Regional Site Planning and Design Studio (Undergraduate)</i> Responsibilities: Kept student attendance records, assisted in grading student assignments, provided GIS technical support and lectures.
LArch 341 The Pennsylvania State University Fall 2008	<i>Plants, Places, People an ecosystem approach to design, planning, and management of the land (Undergraduate)</i> Responsibilities: Kept student attendance records and assisted in grading student assignments.
Research Experience	
Research Assistant The University of Colorado August 2011 - to present	<i>“Phenology and Heat Island Effect of Green Infrastructure in Cities: A window into ecosystem services in urban environments”</i> Responsibilities: Co-developing research design, literature review, GIS mapping, remote sensing, and spatial/statistical analyses.
Research Assistant The University of Colorado Denver May 2013 – to present	Responsibilities: Compiled and created wildfire assessment of historic vegetation maps and spatial analysis for Rocky Mountain National Park.
Research - Co-Principal Investigator The University of Colorado Boulder May 2013 - to present	<i>Visitation and Use on Boulder County’s Regional Trails</i> Responsibilities: Co-developed research proposal, grant application, observation instrument, collected field observations, compiled and computed statistical analyses, and written report.
Intern/Research Manager The Access Fund/Boulder Climbing Community May 2012 - September 2013	<i>Boulder Canyon User Study</i> Responsibilities: Developed a survey and user/car count instrument, provided statistical analyses, and a report for understanding climber use of Boulder Canyon, Boulder, Colorado.
Research Assistant The University of Colorado August 2011 - August 2012	<i>City of Boulder/University of Colorado Sustainability Indicators Project</i> Responsibilities: Co-developed and implemented research design, literature review, GIS mapping, content analysis, spatial

Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

	analysis, city-wide sustainability metrics, survey instrument, interviews, interview coding, and document analysis.
Research Assistant The University of Colorado Boulder Spring 2012	<i>GIS Assistant</i> Responsibilities: Developed GIS resources within the Environmental Design (ENVD) Program including, data acquisition, cleaning, editing, and GIS technical support.
Research Assistant The University of Colorado Boulder Spring 2012	<i>Urban Futures Lab Assistant</i> Responsibilities: Developed a new website and marketing information for the Urban Futures Lab (formerly the Land Use Futures Lab) http://urbanfutureslab.colorado.edu .
Research Assistant The Pennsylvania State University Summer 2010	<i>The Art of Envisioning Landscape (Umění Předvídání Terénu)</i> Responsibilities: Co-authored a report including production, editing, compilation, and art exhibit design, based on a service learning trip to Czech Republic.
Research Assistant The Pennsylvania State University Summer 2010	<i>2011 Exhibition: Re-collections and Re-visions</i> Responsibilities: Printed and compiled student's art for an art exhibit in Praha, Czech Republic.
Research Assistant The Pennsylvania State University Fall 2009 - Spring 2010	<i>geoSPATIAL DESIGN: GIS, RELATIONAL DATABASES, AND DEDICATED COMPUTING.</i> Responsibilities: Provided GIS support for various studios' within the School of Architecture and Landscape Architecture, as well as numerous faculty research projects. Also, provided guidance in developing a hardware and software list for the proposal.
Research Assistant The Pennsylvania State University Fall 2008 - Spring 2009	<i>Integrating Information: Bridging the Gap Between Geographic Information Systems and Building Information Modeling</i> Responsibilities: Provided project management and methodology documentation support.

Professional Experience

Layout Editor The Pennsylvania State University May 2011 - to present	<i>Wetland Science and Practice Journal</i> Responsibilities: Responsible for compiling quarterly issues and designing the journal layout.
Consultant Computer Terrain Mapping July 2013 - September 2013	<i>Pea Ridge National Military Park</i> Responsibilities: Provided ArcGIS technical assistance in creating data conversion, database construction, and mapping symbology.
Project Manager Frederick Seibert & Associates, Inc. Jan. 2003 - Aug. 2008	Responsibilities: Managed all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design. Total constructed projects exceed \$500,000,000 dollars in construction costs.
Designer Frederick Seibert & Associates, Inc. May 2002 - Jan 2003	Responsibilities: Designed projects through all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design.

Refereed Book Chapters

Muller, Brian, Travis Flohr and Mehdi Heris. 2013.

Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

Urban Morphology and Heat: Exploring the Relationships. In Francesco Moccia (ed.) *Sustainable Stormwater Management Infrastructures: Principles and Guidelines*. CLEAN Press. (In Press)

Professional Reports

Flohr, Travis and Stacey Schulte. *Visitation and Use on Boulder County's Regional Trails* (Boulder County, CO: Boulder County Parks and Open Space, 2013).

Flohr, Travis. *Boulder Canyon User Study* (Boulder, CO: Access Fund, 2013).

Non-Refereed Publications

Flohr, Travis. "Communicating Design." *Landscape Architecture Foundation Blog*. Posted January 10, 2011. <http://lafoundation.org/news-events/blog/2011/01/10/osp-travis-flohr/>. (Invited blog post).

Flohr, Travis. "A Landscape Architect's Review of Building Information Modeling Technology." *Landscape Journal: design, planning, and management of the land* 30.1 (2011): 169-170.

Flohr, Travis, Steve Zoretich, and Andy Kalback. "Project Washington County Hospital" in *Celebrating 100 Years of Landscape Architecture Excellence at Penn State*. Edited by Mike Shamalla, Tim Padalino, and Adam McGuire, 62. Penn State Department of Landscape Architecture, 2007.

Publications Under Review

Flohr, Travis, Alessandro Rigolon, and Samuel Gallaher. "An Investigation into the Accessibility of Bicycle Infrastructure: A Mixed Methods Study" Submitted October 2013 to *The Journal of Mixed Methods Research*.

Rigolon, Alessandro and **Travis Flohr**. "Exploring children and youth's accessibility to urban green spaces: A GIS study measuring access opportunities for formal and informal play." Submitted October 2013 to the *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Rigolon, Alessandro and **Travis Flohr**. "Access to Parks for Youth as an Environmental Justice Issue: Access Inequalities and Possible Solutions." Submitted January 2014 to *Buildings*. Invited special issue publication.

Publications Under Preparation for Submission

Muller, Brian, Mehdi Heris, and **Travis Flohr**. "Urban Morphology and Heat: Exploring the relationships." for Summer/Fall 2014 submission to *Journal of the American Planning Association*.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr**, and Mehdi Heris. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments" for Summer/Fall 2014 submission, journal to be determined.

Rigolon, Alessandro, **Travis Flohr**, and Nancy Leech. Tentative title, "Mixed Research in Design and Planning: A Mixed Research Investigation of Trends in the Literature." for Summer/Fall 2015 submission to the *Journal of the American Planning Association*.

Flohr, Travis. "The Equity of Green Infrastructure within Cities: An exploration of Denver, Colorado's urban forest." for Spring 2015 submission to the *Landscape Journal: design, planning, and management of the land*.

Flohr, Travis, Timothy Murtha, Jr, and Michael Hinke. "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." for Fall/Winter 2014 submission to *The Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

Flohr, Travis. "GIS and the iPad." for Fall 2014 submission to the *Landscape Journal: design, planning, and management of the land*.

Refereed Presentations

Rigolon, Alessandro and **Travis Flohr.** "Exploring Children and Youth's Accessibility to Urban Green Spaces: A GIS Study Measuring Access Opportunities for Formal and Informal Play." Paper presented at the 2013 Joint AESOP/ACSP Congress, July 15-19, 2013, Dublin, Ireland.

Muller, Brian, Mehdi Heris, and **Travis Flohr.** "Urban Morphology and Heat: Exploring the relationships." Paper presented at the 2012 *The Association of Collegiate Schools of Planning*, November 1-4, 2012, Cincinnati, Ohio.

Muller, Brian, **Travis Flohr,** and Mehdi Heris. "Heat and city design: reassessing the relationship between urban heat island effects and built morphology." Paper presented at the 2012 *Association of European Schools of Planning*, July 11-15, 2012, Ankara Turkey.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr,** Mehdi Heris, and Mahda Mohammadbagher. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments." Paper presented at the 2012 *Ecological Society of America*, August 5-10, 2012, Portland Oregon.

Muller, Brian, Mehdi Heris, **Travis Flohr,** Saharnaz Mirzazad, Mahda Mohammadbagher, Daryoosh Ardalan, and Sam Assefa. "Measuring Sustainable Urban Form: Developing metric and indicators for the City of Boulder, CO." Paper presented at the 52nd Annual Association of Collegiate Schools of Planning Conference: *ENVISION*, October 13-16, 2011, The University of Utah.

Flohr, Travis, Timothy Joice, and Ceci Rusnak. (2010). "Encountering Czech Agricultural History in a Community Engagement Studio." Paper presented at the 2010 *Agricultural History Society Conference*, June 10-12, Winter Park, Florida.

Flohr, Travis and Timothy Murtha, Jr. (2010). "Participatory Planning: A look at website content and interactivity to maximize educational potential." Paper presented at the 2009-2010 *Council of Educators in Landscape Architecture Conference*, May 12-14, Maastricht, Netherlands.

Invited Guest Lectures

Rigolon, Alessandro and **Travis Flohr.** (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The City of Boulder Parks and Recreation Department, Boulder, CO.

Flohr, Travis and Stacey Schulte. (June 7, 2013). Trail and Recreation Use. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis and Alessandro Rigolon. (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (June 7, 2013). Habitat Fragmentation and Subdivisions. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (April 04, 2013). GIS and Sustainable Development. *Sustainable Community Development II*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis (November, 15, 2012). Environmental Impact Assessment: A case study using the Maryland Forest Conservation Ordinance. *Environmental Impact Assessment*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (November 14, 2012). Evaluating Design and Policies: Spatially understanding complex

Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

systems. *Introduction to GIS*. Lecture conducted from The University of Colorado Denver, Denver, CO.

Posters

Gallaher, Samuel, Alessandro Rigolon, **Travis Flohr**, and Pawinee Chuayprakong. (2013). "Bike Share Equity and Efficiency: A Mixed Methods Approach." Poster presented at the *16th Annual Research and Creative Activities Symposium*. University of Colorado, Denver, April 19, 2013.

Buma, Brian, Brian Muller, Carol Wessman, **Travis Flohr**, Mehdi Heris, and Mahda Mohammadbagher. (2012). "Assessing the Benefits of Green Infrastructure: The Dynamics of Landscape Decision, Built Morphology, and Ecosystem Services." Poster presented at the *2012 United States Regional Association of the International Association for Landscape Ecology: Informing Decisions in a Changing World Annual Symposium*. Newport, Rhode Island, April 8-12, 2012.

Buma, Brian, **Travis Flohr**, Mehdi Heris, Mahda Mohammadbagher, Daryoosh Ardalan, Brian Muller, and Carol Wessman. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the *2012 Front Range Student Ecology Symposium*. Colorado State University, Fort Collins, Colorado, February 21-22, 2012.

Wessman, Carol, Brian Muller, Brian Buma, Mehdi Herris, **Travis Flohr**, Mahda Mohammadbagher, and Daryoosh Ardalan. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the Spring 2012 *Cooperative Institute for Research in Environmental Sciences: Innovative Research Program Poster Session*. University of Colorado Boulder, Boulder, Colorado.

Flohr, Travis and Timothy Murtha. (2010). "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." Poster presented at the 2010 *Penn State Graduate Exhibition*, March 28, 2010, University Park, Pennsylvania.

Exhibitions

Flohr, Travis (2011). "LAYERS (Vrstvy)." Exhibited in *2011 Exhibition: Re-collections and Re-visions*. Curated by Cecilia Rusnak and Ann Tarantino. Vyšehrad Gallery, Prague, Czech Republic.

Grants and Contracts

Flohr, Travis and Stacey Schulte. (2013). *Visitation and Use on Boulder County's Regional Trails*. Small Grant Proposal to Boulder County Parks and Open Space. Boulder County, Colorado. (\$9,000).

Hinke, Michael, **Travis Flohr**, and Nader Afzalan. (2013). *Software Training for Designers and Planners – Department of Planning and Design, University of Colorado Denver Fall 2013*. Department of Planning and Design, College of Architecture and Planning University of Colorado, Denver. (\$6,000)

Beck, Jody. (2013). *Inventory of Urban Agricultural Potential for the Denver Metropolitan Area*. Center for Faculty Development University of Colorado, Denver. (\$10,000 - not funded, role of research assistant).

Derr, Victoria, John Lanterman, and **Travis Flohr**. (2013). *Sustainable and Productive Landscapes: Exploring the Potential for Learning Laboratories on the CU Campus and Boulder Community*. University of Colorado, Boulder SEED Grant Program University of Colorado, Boulder. (\$47,650 - not funded).

Flohr, Travis. (2012). *Fall 2013 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received two excellent and one very good review).

Flohr, Travis. (2011). *Fall 2012 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received one excellent and two very good reviews).

Service

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Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

Departmental <i>GIS and Technology in Design and Planning Certificate</i> University of Wisconsin-Madison	Department of Landscape Architecture Undergraduate Curriculum Committee.
University <i>GIS and Technology in Design and Planning Certificate</i> University of Colorado Denver Advisor	Advised the Department of Planning and Design on GIS Certificate coursework and curriculum development.
University <i>The Master Gardener Program</i> The Pennsylvania State University Lecturer	Instructed the "Landscape Design" portion of Penn State's Master Gardener Program.
Discipline <i>2011 CELA Conference Publication</i> Peer Reviewer	Peer Reviewer for the 2011 Council of Educators in Landscape Architecture (CELA) Conference, <i>urban nature</i> , proceedings publication.
Discipline <i>Frederick Seibert & Associates, Inc.</i> High School Mentor	Mentored two Greencastle-Antrim High-School work-study students.

Awards and Honors

ASLA Student Merit Award Pennsylvania-Delaware Chapter Spring 2010	The American Society of Landscape Architecture Student Merit Award
Creative Achievement Award The Pennsylvania State University Spring 2010	The Pennsylvania State University, College of Arts and Architecture Landscape Architecture Graduate Student Creative Achievement Award
Olmsted Scholar The Pennsylvania State University Spring 2010	2010: Penn State Olmsted Scholar
Penn State Graduate School Poster Exhibition The Pennsylvania State University Spring 2010	The Pennsylvania State University Graduate Student Poster Exhibition: 2nd Place Finisher (\$250.00 Prize)
Golden Key The Pennsylvania State University Fall 2008 - Spring 2009	A Golden Key International Honour Society inductee by placing in the top 15% of my class at The Pennsylvania State University.

License(s), Membership(s), and Affiliation(s)

RLA 2007 - 2013	Registered Landscape Architect: Pennsylvania
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Professional Training

Wetland Delineation Field Practicum May 22-23, 2004	Wetland Training Institute
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Travis Flohr, RLA

Email: Travis.Flohr@iecostudio.com

Wetland Delineation Certification Program May 17-21, 2004	Wetland Training Institute
Maryland Forest Conservation Qualified Professional Training May 17, 2003	Carroll County Community College

Douglas Bryan Hadley
302 Grand Canyon Drive #111
Madison, Wisconsin 53705
(608) 345-5917 dbhadley@wisc.edu

PROFESSIONAL EXPERIENCE

Senior Lecturer – University of Wisconsin, Madison 8/00-Present

- Develops and teaches Department of Landscape Architecture course curriculum on variety of landscape planning, design, analysis and evaluation methods. Engages students in discussions to identify and protect critical natural and cultural resources for projects of all scales and types as well as determining areas suitable for specific types of activities and developments. Instructs freshman to senior level students on the use of ArcGIS as an inventory, analysis, and design tool. Works on a university committee developing a one year post baccalaureate Geodesign certificate.

Program Coordinator – University of Wisconsin, Madison 7/13-Present

- Worked as part of a team to promote and develop an inter campus collaborative Capstone Certificate in Geodesign.

Landscape Technician – Quinn Evans Architects, Madison, WI 10/08-3/09

- Worked with internal team and clients
- Prepared reports and plans for historic properties and landscapes.

Instructor – Frank Lloyd Wright School of Architecture, Spring Green, WI
6/00-12/05

- Designed and delivered lectures and hands on learning activities focused on:
 - The Taliesin Landscape
 - The Regional Landscape of Taliesin
 - Historic Landscape Preservation and Management at Taliesin
 - Plants and Planting Design

Landscape Program Coordinator - Taliesin Preservation, Inc. Spring Green, WI
6/99-12/06

- As part of the team responsible for the management and preservation of Frank Lloyd Wright
600 acre Taliesin estate, directed and organized efforts related to historic landscape research, historic landscape research, project planning, project funding, project implementation, project documentation, and preparing reports for board review. Managed multiple projects simultaneously.
- Conducted research, planning, and documentation for historic landscape preservation,

rehabilitation, restoration and reconstruction projects.

- Led estate activities and programs including natural and cultural resource management and project management and reporting.
- Successfully raised funds prairies restoration and forestry management projects from the
 - Wisconsin DNR, the Fish and Wildlife Services, as well as from corporate sponsors such as Fiskar's and Monsanto
- Developed and deepened close working partnerships with local, state, and federal agencies
- Honed interpersonal skills while leading a variety of volunteer groups ranging from local school children to local citizens.
- Expertise with ArcGIS used extensively in many job activities.

Kewaunee County Extension Internship – University of Wisconsin – Madison
5/93-8/93

- Worked with county extension agent in charge of planning to meet with citizens to identify needs and desires of the community and to develop programs to begin meeting those needs.

SKILLS

ArcGISPhotoshopHand Graphics

AutoCADIllustratorSketchUp

Power Point InDesign

RECENT CLASSES TAUGHT

LA 201: Introductory Landscape Architecture Studio (8/10-12/12)

LA 250: Survey of Landscape Architecture Design (8/2000-present)

LA 262: Landscape Inventory and Evaluation Methods (8/2000-present)

LA 270: Landscape Design Workshop (1/2006-5/2009)

LA 375: GIS Refresher (8/2004-12/2005)

LA 462: Regional Design (8/11-12/13)

OUTREACH

FFA, 2002-2013

Develop and administer landscape plan reading exam.

Taliesin Preservation Inc., 2007-Present

Assist preservation staff with landscape issues and GIS maintenance and development.

Coordinate Taliesin Work Days with students from UW-Madison.

PROJECTS

Landscape Design for Krekeler Residence

Landscape Design for Peterson Residence

Management Plan for the Ganser Residence

Riley GIS Viewshed Analysis Project

Capitol Park GIS Project

PRESENTATIONS

Wisconsin Garden Club Federation -

Design Process, Design Elements and Design Principles, Outdoor Rooms 4/2005 and 4/2009, 4/2014

Regional design, Taliesin as Regional Design, 4/2010

Milwaukee Horticulture Club

Historic Landscape Preservation at Taliesin, 4/2009

Madison Optimist Club

Taliesin Landscapes, 7/2003

Monsanto, Madison Office

Landscape Projects at Taliesin, 7/2002

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EDUCATION

May 2011 Masters of Arts in Landscape Architecture

Thesis topic: Management Plan for The Michels Farm at Taliesin.

5/90 Bachelors of Science in Landscape Architecture- Rutgers
University, NJ

5/90-8/90 Independent Study of Islamic Gardens, Spain – Roy DeBoer Prize,
Rutgers University

6/89-8/89 Summer Semester in Urbino, Italy- Rutgers University, NJ

Appendix D: Letters of Support and OCP Diagram

Letters of Support

An updated letter of support is being solicited from Geography, now that the proposal has been finalized. Letters are also being solicited from Engineering, Urban and Regional Planning, Environmental Studies – Gaylord Nelson Institute, and Geoscience.



February 1, 2014

CALS Curriculum Committee
University of Wisconsin-Madison

RE: Letter of Support for Educational Innovation Proposal (Geodesign Certificate)

Dear Committee:

The Department of Landscape Architecture fully supports the development of the Geodesign Capstone Certificate Program at the University of Wisconsin-Madison and happily agrees to be the lead home. The development of this certificate program is a listed Education Innovation objective in the department's 2013 strategic plan.

The certificate meets the Education Innovation Fund goals of scalable instructional approaches through its use of online learning, its target of nontraditional students and professionals, and the ability to generate new resources. The department sees significant benefits that can occur from future collaborations with other campus units (Engineering Professional Development/Sustainable Systems Engineering, Geography/State Cartographers Office) and UW system institutions (UW-Stevens Point) including access to a large expertise base that is interdisciplinary and potential synergies with several existing related but unique programs. Indeed these collaborations are scalable over time within these initial units and the certificate program framework provides opportunity for additional growth that can include partnerships with other campus units and system institutions.

The department is committed to providing homes and support for the permanent faculty lead and program coordinator. The department has successfully sought cost-sharing funds from CALS, DCS and EI for development and lab modernization grant for a small computer lab for in-house geodesign activities and visiting students of the program.

The design and planning disciplines, with which our department interacts, are increasing their focus on finding design solutions that addresses global goals of population growth and health, climate change and resource demands. Geodesign provides these disciplines an important design framework that utilizes spatial and temporal data and technology for the evaluation of design alternatives that compares their environmental and societal impacts. We are excited to have the opportunity to offer this certificate and look forward to working with our partners in its development.

Sincerely,

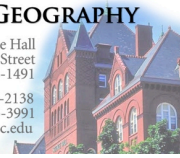
John Harrington, Chair





DEPARTMENT OF GEOGRAPHY

160 Science Hall
550 North Park Street
Madison, WI 53706-1491
Telephone: 608-262-2138
Fax: 608-265-3991
Web: www.geography.wisc.edu



28 January 2014

Professor John Harrington, Chair
Department of Landscape Architecture
University of Wisconsin - Madison
1 Agricultural Hall
Madison, Wisconsin 53706

Dear Professor Harrington,

RE: Memo of Support for the Capstone Certificate in Geodesign Program

As chair of the UW-Madison Geography Department, I write in support of your efforts for a Capstone Certificate in Geodesign Program between the University of Wisconsin-Madison Department of Landscape Architecture and University of Wisconsin-Stevens Point Department of Geography and Geology.

It is my understanding that the Geodesign program is conceived as an interdisciplinary, multi-institution effort initially spanning Landscape Architecture at UW-Madison, as well as Geography/Geology at UW-Stevens Point, and potentially open to other departments and programs within the UW-System at a future date. This program would offer a significant distance-learning component to serve the needs of a specific professional sector. The Geodesign Capstone is a unique opportunity to model a successful multi-campus educational effort incorporating many of the goals of UW including extending capacity to reach additional learners through online course offerings. This program structure reflects a conscious effort to make courses accessible to non-traditional students and working professionals.

Based on the draft proposal provided to us for review and discussions within our department, I see the potential for a program in Geodesign that complements rather than duplicates our mission to provide core competencies in GIScience. Indeed, as indicated in the program proposal, "the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous coursework and/or professional projects". If anything it is possible that our programs could benefit from a capstone focused on Geodesign, due to increased demand for existing courses and the opportunity to develop new more specialized course offerings.

I need to emphasize that our support is conditional on the program's requirement that students enter with coursework and/or experience in GIScience. I bring this up because proposals for two new courses required for the program (LA 630 and 631) include the following:

List the prerequisites and other requirements for the course

There are no prerequisites [sic] courses. Students must have existing GIS experience or have taken a GIS refresher course and be enrolled in the Geodesign Certificate program.

This implies a person with no GIS knowledge or experience can substitute a "refresher course" that would presumably duplicate our introductory GIS course (GEOG 377). We have no problem with the content proposed for 630 and 631, but we would prefer different wording regarding prerequisites, perhaps along the lines of:

List the prerequisites and other requirements for the course

Geog 377 or equivalent. Work experience demonstrating mastery of core GIS principles and competency is an acceptable substitute. Enrollment is limited to students in the Geodesign Certificate program.

In addition, we note that the syllabus for another required course (LA 633) includes modules covering map scale, coordinate systems, projections, spatial data models, spatial interpolation, spatial statistics and weighted overlays. All of these are very basic and are part of GEOG 377. This, plus the fact that LA 633 makes considerable use of Bolstad's book "GIS Fundamentals: A First Text on Geographic Information Systems" leads us to think LA 633 intends to teach core GIS concepts and would duplicate much of GEOG 377. We will note these issues in comments on the course proposals, but I want to flag them here because of their obvious importance to the question of program overlap.

Speaking as Chair of Geography, it is encouraging to see activity and diversity on campus in the geospatial area, particularly for initiatives that are complementary and do not negatively impact existing programs. Likewise it is important that configuration of input resources (e.g., effort, courses, management) and output resources (e.g., revenue, unit recognition) are shared in appropriate ways. As the Geodesign effort moves forward I anticipate that a discussion of such resource questions will need to occur, and I look forward to that discussion.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kris Olds', with a stylized, flowing script.

Kris Olds
Professor and Department Chair

OCP Review Diagram

	LA630	LA631	LA633	LA634	LA671	KEY
Land Arch	Advanced 12/30/14	Assigned 12/18/13	Assigned 12/18/13	Approved 12/30/13	Advanced 12/31/14	Advanced in Process
Community and Environmental Sociology	assigned 12/18/14	Approved 12/18/13	Approved 1/15/14	Approved 12/18/13	Approved12 /18/13	OCP Workflow Email approval
Urban and Regional Planning	Approved 1/15/14	Approved 1/15/14	Approved 1/15/14	Approved 1/15/14	Approved 1/15/14	No approval
Geography	Assigned 12/18/13 Commented 1/24/14 Adressed 2/3/14	Assigned 12/18/13 Commented 1/24/14 Adressed 2/3/14	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Signature listed on Course Approval website but no OCP Workflow Email approval
Civil and Environmental Engineering	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Was not listed as an affected subject in the original online proposal
Zoology	Approved 1/24/14	Approved 1/24/14	Approved 1/24/14	Approved 1/24/14	Approved 1/24/14	
Forestry and Wildlife Ecology	Approved 12/30/13	Approved 12/30/13	Assigned 12/18/13	Approved 1/24/14	Approved 12/30/13	
Envir Studies - Gaylord Nelson Institute	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	Assigned 12/18/13	
Geoscience	Approved 12/30/13	Approved 12/30/13	Approved 1/22/14		Approved 12/30/13	
Soil Science			Approved 1/28/14			

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Appendix E: Expanded Geodesign Competency Model

Theme	Description	Level of Comprehension and Application																	
		Program Admittance Prerequisites			LA 630 Introduction to Geodesign			LA 631 Geodesign Methods			LA 671 GIS and Geodesign			LA 633 Geospatial			LA 634 Capstone Project		
		R	S	ST	R	S	ST	R	S	ST	R	S	ST	R	S	ST	R	S	ST
History, Criticism & Foundations																			
	What is GIS?																		
	What is Geodesign and who practices Geodesign?																		
	Geodesign innovators and innovations.																		
	Categorize the skills and competencies required for conducting geodesign.																		
	Define and understand the Geodesign Process and Framework.																		
	Describe why Geodesign and why it is meaningful.																		
Planning and Design																			
	Define existing design and planning decision-making frameworks/processes.																		
	Define existing public participation methods and how to identify key stakeholders.																		
	Understand policy-making and enforcement processes.																		
	Ability to define and analyze user needs.																		
	Define planning.																		
	Differentiate planning and design from Geodesign.																		
	Understand and define sustainability and resiliency.																		
Geospatial Technology, Models, and Skills																			
	Know and understand how to perform an overlay analysis.																		
	Understand the concept of containment in GIS data.																		
	Understand various GIS data structures (i.e. shapefile, geodatabase, point, line, polygon, vector, and raster) and how GIS and the operating system stores and recalls files (i.e. system paths, etc.).																		
	Understand various attribute table field types (i.e. integer, long, text, etc.) and field rules.																		
	Understand and use spatial (i.e. proximity) queries.																		
	Understand the concept and how to evaluate adjacency.																		
	Understand GIS geometry (i.e. points, lines, polygons, and surfaces).																		
	Computer operating and file management basics (windows, internet, office productivity, graphics/layout).																		
	Understand and apply basic Cartography/map making standards and principles, including symbolization of data (i.e. converging, diverging, categorical, and normalization of data).																		
	Understand and apply spatial and table queries.																		
	Understand and apply basic vector data and attribute table creation and editing functions (i.e. creating new shapefiles, joining tables, editing and creating new vector features, new fields, attributes, and templates).																		
	What role does technology and geospatial technology play in Geodesign.																		
	Understand and apply metrics, measurements, and scale.																		
	Conceptualize Geodesign problems and the associated technology and model requirements.																		
	Apply Geodesign technology, analysis, models, and visualization skills.																		
	Evaluate Geodesign scenario outcomes and models.																		
Environmental Sciences																			
	Understanding of how natural systems work (i.e. hydrology, habitat, etc.).																		
	Understand and apply Geodesign to designing and quantifying impacts to natural systems.																		
	Understand and be able to design within human/cultural responses to environmental problems.																		
Information Science																			
	Data collection and management.																		
	Apply and use information from multiple scales and sources.																		
	Evaluate and assess information for reliability, integrity, and appropriateness.																		
	Customization of tools, dashboards, and widgets within a suite of Geodesign technology.																		
	Understand and apply technological tools for public engagement																		
Cultural and Social Sciences																			
	Understand the role of Geodesign within cultural and social systems.																		
	Understand the role human behavior plays in problem solving.																		
Communication																			
	Graphic visualization																		
	Written communication																		
	Verbal communication and presentations																		
	Public engagement and facilitation																		
Policy																			
	Policy analysis																		
	Understand how to work within a regulatory context.																		
	Procedures for challenging and proposing new regulations and policies.																		
Values and Ethics																			
	Privacy issues with data and the Geodesign framework.																		
	Data access issues.																		
	Social justice of privacy, data, decision-making, and client issues.																		
	How values and ethics influence decision-making.																		
	Responsibilities of practitioners using Geodesign.																		
	Sustainability ethics.																		
	Values and ethics in design and planning (i.e. rational, logical, systematic, collaborative rationality, etc.)																		
	R= Recall																		
	S= Skills																		

Appendix F: Pre-Program Launch (Fiscal Year 2015 Summer) and Initial Program Launch Projected Budget (Fiscal Year 2015-2017)

FY 2015 Summer Semester

Name	Projected Expenditures	Geodesign-DCS (10)	Geodesign-CALS EI (101)	Revenue
Initial Funding/Gross Revenue (1)		\$23,017.07	\$5,000.00	\$0.00
Program Coordinator	\$10,516.00	(\$5,516.00)	(\$5,000.00)	
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	(\$3,785.76)	\$0.00	\$0.00
Marketing	\$2,000.00	(\$2,000.00)	\$0.00	\$0.00
Hardware	\$0.00	\$0.00	\$0.00	\$0.00
Software	\$0.00	\$0.00	\$0.00	\$0.00
Additional Salary Commitments	\$0.00	\$0.00	\$0.00	\$0.00
Travel, Recruitment, Coordination				
Travel, etc.	\$2,000.00	(\$2,000.00)	\$0.00	\$0.00
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00	\$0.00	\$0.00
Net Revenue****	\$16,301.76	\$9,715.31	\$0.00	\$0.00

(1) CALS has also agreed to an additional \$5,000 in EI funding for fiscal year 2015. DCS has agreed that FY 14 funds can carryover to FY 2015, but not beyond.

FY 2015 Fall Semester

Name	Projected Expenditures	Geodesign-DCS (104)	Fall Revenue
Initial Funding/Gross Revenue (1)		\$9,715.31	\$32,160.00
Program Coordinator	\$10,516.00	(\$7,143.61)	(\$3,372.39)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	(\$2,571.70)	(\$1,214.06)
Marketing	\$2,000.00	\$0.00	(\$2,000.00)
Hardware	\$0.00	\$0.00	\$0.00
Software	\$0.00	\$0.00	\$0.00
Instruction (Salary, TA, etc.)			
Introduction to Geodesign (3 cr.)	\$9,200.00	\$0.00	(\$9,200.00)
Geodesign Methods (3 cr.)	\$10,000.00	\$0.00	(\$10,000.00)
Additional Salary Commitments	\$0.00	\$0.00	\$0.00
Travel, Recruitment, Coordination Travel, etc.	\$1,000.00	\$0.00	(\$1,000.00)
Program Administration	\$1,000.00	\$0.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00	\$0.00
Net Revenue	\$37,501.76	\$0.00	\$4,373.55

(1) Revenue numbers are based on a first cohort of 8 students ((8 x 2 -3 credit courses)) with tuition and fees of \$4,020 (after fees, program net gross) per 3 credit class per student.

FY 2015 Spring Semester

Name	Projected Expenditures	Remaining Revenue	Spring Revenue
Initial Funding/Gross Revenue (1)		\$4,373.55	\$32,160.00
Program Coordinator	\$10,516.00	\$0.00	(\$10,516.00)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	\$0.00	(\$3,785.76)
Marketing	\$6,000.00	(\$1,936.50)	(\$4,063.50)
Hardware	\$0.00	\$0.00	\$0.00
Software	\$0.00	\$0.00	\$0.00
Instruction (Salary, TA, etc.)			
GIS and Geodesign for Sustainability and Resiliency (3 cr.)	\$9,400.00	(\$2,437.05)	(\$9,400.00)
Geospatial Approaches to Conservation and Adaptation (3 cr.)	\$9,000.00	\$0.00	(\$9,000.00)
Additional Salary Commitments	\$0.00	\$0.00	\$0.00
Travel, Recruitment, Coordination Travel, etc.	\$1,000.00	\$0.00	(\$1,000.00)
Program Administration	\$1,000.00	\$0.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00	\$0.00
Net Revenue****	\$38,701.76	\$0.00	(\$6,605.26)

(1) Revenue numbers are based on a first cohort of 8 students ((8 x 2 -3 credit courses)) with tuition and fees of \$4,020 (after fees, program net gross) per 3 credit class per student.

FY 2016 Summer Semester

Name	Projected Expenditures	Remaining Revenue	Spring Revenue
Initial Funding/Gross Revenue (1)		-\$6,605.26	\$16,080.00
Program Coordinator	\$10,516.00	\$0.00	(\$10,516.00)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	\$0.00	(\$3,785.76)
Marketing	\$1,000.00	\$0.00	(\$1,000.00)
Hardware	\$0.00	\$0.00	\$0.00
Software	\$0.00	\$0.00	\$0.00
Instruction (Salary, TA, etc.)			
Capstone Project (3 cr.)	\$10,000.00	\$0.00	(\$10,000.00)
Additional Salary Commitments	\$0.00	\$0.00	\$0.00
Travel, Recruitment, Coordination			
Travel, etc.	\$0.00	\$0.00	\$0.00
Program Administration	\$1,000.00	\$0.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00	\$0.00
Net Revenue****	\$25,301.76	(\$6,605.26)	(\$10,221.76)

(1) Revenue numbers are based on a first cohort of 8 students ((8 x 1 -3 credit courses)) with tuition and fees of \$2,010 (after fees, program net gross) per 3 credit class per student.

Appendix G: Projected Budget (Fiscal Year 2018 and Beyond)**FY 2018 Fall Semester**

Name	Projected Expenditures	Fall Revenue
Initial Funding/Gross Revenue (1)		\$100,500.00
Program Coordinator	\$10,516.00	(\$10,516.00)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	(\$3,785.76)
Marketing	\$8,000.00	(\$8,000.00)
Hardware	\$10,000.00	(\$10,000.00)
Software	\$10,000.00	(\$10,000.00)
Instruction (Salary, TA, etc.)		
Introduction to Geodesign (3 cr.)	\$9,200.00	(\$9,200.00)
Geodesign Methods (3 cr.)	\$12,000.00	(\$10,000.00)
Additional Salary Commitments	\$0.00	\$0.00
Travel, Recruitment, Coordination		
Travel, etc.	\$2,000.00	(\$2,000.00)
Program Administration	\$1,000.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00
Net Revenue	\$63,501.76	\$35,998.24

(1) Revenue numbers are based on a first cohort of 25 students ((25 x 2 -3 credit courses)) with tuition and fees of \$4,020 (after fees, program net gross) per 3 credit class per student.

FY 2018 Spring Semester

Name	Projected Expenditures	Spring Revenue
Initial Funding/Gross Revenue (1)		\$100,500.00
Program Coordinator	\$10,516.00	(\$10,516.00)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	(\$3,785.76)
Marketing	\$8,000.00	(\$8,000.00)
Hardware	\$5,000.00	(\$5,000.00)
Software	\$5,000.00	(\$5,000.00)
Instruction (Salary, TA, etc.)		
GIS and Geodesign for Sustainability and Resiliency (3 cr.)	\$9,400.00	(\$9,400.00)
Geospatial Approaches to Conservation and Adaptation (3 cr.)	\$9,000.00	(\$9,000.00)
Additional Salary Commitments	\$0.00	\$0.00
Travel, Recruitment, Coordination Travel, etc.	\$2,000.00	(\$2,000.00)
Program Administration	\$1,000.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00
Net Revenue****	\$50,701.76	\$46,798.24

(1) Revenue numbers are based on a first cohort of 25 students ((25 x 2 -3 credit courses)) with tuition and fees of \$4,020 (after fees, program net gross) per 3 credit class per student.

FY 2019 Summer Semester

Name	Projected Expenditures	Spring Revenue
Initial Funding/Gross Revenue (1)		\$50,250.00
Program Coordinator	\$10,516.00	(\$10,516.00)
Program Coordinator - Fringe Benefits @ 36%	\$3,785.76	(\$3,785.76)
Marketing	\$8,000.00	(\$8,000.00)
Hardware	\$0.00	\$0.00
Software	\$0.00	\$0.00
Instruction (Salary, TA, etc.)		
Capstone Project (3 cr.)	\$10,000.00	(\$10,000.00)
Additional Salary Commitments	\$0.00	\$0.00
Travel, Recruitment, Coordination		
Travel, etc.	\$2,000.00	(\$2,000.00)
Program Administration	\$1,000.00	(\$1,000.00)
Discretionary Fund (for future program expansion and/or needs)	\$0.00	\$0.00
Net Revenue****	\$32,301.76	\$14,948.24

(1) Revenue numbers are based on a first cohort of 25 students ((25 x 1 -3 credit courses)) with tuition and fees of \$2,010 (after fees, program net gross) per 3 credit class per student.

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

Course Title

Introduction to Geodesign

Transcript Title (limit 30 characters)

Introduction to Geodesign

Three-digit course number

630

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

No

Note the crosslisted subjects

What is the primary divisional affiliation of this course?

Arts & Humanities

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Fall

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

Introduction to Geodesign ideas and methods. Students will explore a Geodesign body of knowledge, consider the use of geospatial technologies in the design and planning professions, contemplate GIS for engaging and empowering the public in decision-making, and will apply GIS for spatial data exploration, analysis, resource allocation, impact evaluation, and monitoring. 2hrs lecture 2 hrs lab.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Prerequisites: Students must have existing GIS experience or have taken a GIS refresher course: UW-Madison Geography 377, UW-Stevens Point Geography 377 or equivalent. Work experience demonstrating mastery of core GIS principles and competency is an acceptable substitute. Enrollment limited to students in the Geodesign Certificate Program.

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Laboratory

Lecture

Administrative Information

Chief Academic Officer

John A Harrington

Designee of chief academic officer for approval authority

Deborah A Griffin; Evelyn A Howell

If there are additional contacts, please list

Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com>, Douglas Miskowiak (Doug.Miskowiak@uwsp.edu)

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course**Beginning Term**

Fall 2014-2015

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

Yes

Which program?

Geodesign Certificate

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

This course will be one of five courses designed for the Geodesign Capstone Certificate between UWSP and UW-Madison.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

This course will count as a prerequisite for LA633: Geospatial Approaches to Conservation Design and Adaptation and LA671: GIS and Geodesign for Sustainability and Resiliency

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

*Geodesign is the integration of design and planning, the social and economic sciences, the physical and natural sciences, human values and public participation, using geographic information systems (GIS) with the goal of creating a better, sustainable future. Topics in GIS, land information systems (LIS), decision support systems, scenario planning, 3-D visualization and communication, suitability analysis, growth management, public participation GIS, impact assessment and interactive dashboards, and monitoring change will be addressed for planners, designers, engineers, scientists, elected officials, and citizens. The introduction to Geodesign will cover a broad body of knowledge and students will develop skills and competencies related to: * Geodesign history, criticism and foundational ideas, * Planning and design processes and decision-making frameworks in a Geodesign context, * Roles and practices of geospatial technology for planning and design, * Geodesign's interdisciplinary application of the natural, cultural, and information sciences, * Spatial communication, * Evaluating public policy and regulation through a spatial lens, and * Values and ethical issues in Geodesign.*

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

At UW-Madison a GIS Certificate is offered by the Department of Geography. The proposed Geodesign Capstone Program, however, is different in several regards. First, the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional projects. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly, however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Geodesign Program will focus on the use of GIS and other geospatial technology to solve design problems. In a way what is taught in the GIS Certificate program can be seen as a prerequisite for the Geodesign Program. GIS is the art and science of "what is and how it came to be" whereas geodesign can be seen as the art and science of using geospatial information in the realm of "what could be." The Department of Geography has been consulted about the Geodesign Program and wrote a letter of support for a Geodesign Program Educational Innovation (EI) grant in March, 2013. The letter states that Geography does not anticipate that the Geodesign Program would compete with existing, residence programs in Cartography and GIS or duplicate the department's mission to provide core competencies in GIS. The Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

*Community & Environmental Soc (864)
Forest And Wildlife Ecology (396)
Zoology (970)
Urban And Regional Planning (944)
Civil and Environmental Engr (240)
Envir St - Gaylord Nelson Inst (360)
Geography (416)
Geoscience (420)*

List the instructor name and title (list multiple if applicable)

Doug Miskowiak, GIS Education Specialist(UW-SP)

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

Doug education and professional and academic experience has been in the areas of land use planning and geographic information systems. He holds a BS from the Department of Landscape Architecture at UW-Madison, and an MS in Urban and Regional Planning at UW-Madison. Doug has been an instructor in online and in-class GIS and Geodesign related courses for 13 years. He has been a GIS Education Specialist at the GIS Center - Department of Geography/Geology for the past 4 years. Doug has a long list of publications on GIS and Geodesign and has made dozens presentations concerning these topics at conference across the country.

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

Final Syllabus_430_630.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This course is one of two foundation courses that are part of the proposed fifteen-credit Geodesign Certificate.

Provide an estimate of the expected enrollment

Full enrollment is anticipated to be 20-30 students.

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

The course will meet for 15 weeks. There will be two hours of lectures and two hours of lab per week. There will also be six hours of discussion during the semester

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of a proposed Geodesign Capstone Program. The program is an interdisciplinary initiative within the University of Wisconsin System. The initiative is being led by the Department of Landscape Architecture at UW-Madison and the Department of Geography and Geology/GIS Center at UW-Stevens Point. The State Cartographer's Office (Department of Geography, UW-Madison) is a key partner and acts as a neutral party and liaison between the two departments. The Geodesign Program will follow a "home campus model." A graphic of this model is on page 3 (Figure 1: Geodesign Certificate Program Home Campus Model) of the attached Geodesign Capstone Program proposal. There will be a total of five three-credit courses. Faculty from each program will be responsible for teaching 1 foundation course and a second advanced course. The fifth course will be a capstone experience taught by faculty from both campuses. Courses will be cross listed between the Department of Landscape Architecture at UW-Madison and the Department of Geography/Geology at UW-Stevens Point. All courses will be taught online.

Additional attachments (optional) (please read "help" before uploading an attachment)

GeodesignAPC Doc_Dec12_2013_JH..pdf

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

GEOG430/630/ LA 630 Introduction to Geodesign

Course Logistics
Syllabus – Fall 2014

Instructor: Douglas Miskowiak

Course Overview

Geodesign is the integration of design and planning, the social and economic sciences, the physical and natural sciences, human values and public participation, using geographic information systems (GIS) with the goal of creating a better, sustainable future. Topics in GIS, land information systems (LIS), decision support systems, scenario planning, 3-D visualization and communication, suitability analysis, growth management, public participation GIS, impact assessment and interactive dashboards, and monitoring change will be addressed for planners, designers, engineers, scientists, elected officials, and citizens.

The introduction to Geodesign will cover a broad body of knowledge and students will develop skills and competencies related to:

- Geodesign history, criticism and foundational ideas,
- Planning and design processes and decision-making frameworks in a Geodesign context,
- Roles and practices of geospatial technology for planning and design,
- Geodesign's interdisciplinary application of the natural, cultural, and information sciences,
- Spatial communication,
- Evaluating public policy and regulation through a spatial lens, and
- Values and ethical issues in Geodesign.

Target Audience

This course is intended for audiences interested in a broad introduction to Geodesign for planning, design, sustainability, engineering, and architecture. Students should have a background in geography, natural resources, landscape architecture, or urban and regional planning. Students should have an introduction to geographic information systems.

Readings

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, San Diego, CA.
2. Steinitz, Carl. (2012). A Framework for Geodesign. Changing Geography by Design. Esri Press. Redlands. CA.
3. Heberlein, Thomas. Navigating Environmental Attitudes. Oxford University Press. 2012.
4. Other readings as assigned by the instructor.

Grading

Class Participation: (10 opportunities for participation)	250 Points
Quizzes (5 at 10 points each)	50
Exams (2 at 100 points each)	200
Collaborative Studio & Final Report (plan for planning)	500
Total Points	1,000

GEOG430/630/ LA 630 Introduction to Geodesign

Course Logistics
Syllabus – Fall 2014

Grading Scale

Ranges of percentage scores, participation points, quiz points, exam points, collaborative studio points, course points, and their equivalent letter grades are shown below. By referring to this table you can determine your letter-grade standing at any point in the course.

<u>Percent</u>	<u>25 Partic.</u>	<u>10 Quiz</u>	<u>100 Exam</u>	<u>500 Studio</u>	<u>Course Pts.</u>	<u>Letter Grade</u>
93-100	25	9.3	93	465	930	A
90	25	9.0	90	450	900	A-
87	10	8.7	87	435	870	B+
83	10	8.3	83	415	830	B
80	10	8.0	80	400	800	B-
77	5	7.7	77	385	770	C+
73	5	7.3	73	365	730	C
70	0	7.0	70	350	700	C-
67	0	6.7	67	335	670	D+
63	0	6.3	63	315	630	D
<63	0	<6.3	<63	<315	<630	F

Course Schedule

- (9/2-5) **Module 1: What is geodesign? Where do I fit in with geodesign?**
Online discussion.
- (9/8-12) **Module 2: Timeline of Geodesign and Geodesign Innovators (Innovators Prospectus)**
Online discussion. Quiz 1.
- (9/15-19) **Module 3: Design Models**
Online discussion. Quiz 2.
- (9/22-26) **Module 4: Geodesign Tools: GIS and Planning Support Systems**
Online discussion.
- (9/29-10/3) **Module 5: Designing a Multi-Purpose Land Information System for Geodesign**
Online discussion. Quiz 3.
- (10/6-24) **Module 6: Public Participation in Geodesign – Navigating Human Behaviors**
Online discussion.
- (10/6) **Midterm Examination**
- (10/13-24) **Module 7: Scoping (Exploring) the Geodesign Study.**
Final Project Assigned: Collaborative Studio
- (10/27-31) **Module 8: Designing the Study Methodology**
Quiz 4. Collaborative Studio: Develop the methodology and explore issues
- (11/3-7) **Module 9: Analyze Patterns, Trends, Relationships**
Collaborative Studio: Analyze patterns, trends, relationships
- (11/10-14) **Module 10: Allocate scarce resources.**
Collaborative Studio: Allocations
- (11/17-21) **Module 11: Evaluate Outcomes and Impacts**
Quiz 5. Collaborative Studio: Evaluating and measuring outcomes.
- (11/24-12-5) **Module 12: Carrying Out the Study**
Collaborative Studio: Finish reporting and presentation.
- (12/8-19) **Module 13: A Future for Geodesign – Gauging Success**
Collaborative Studio: Student presentations and reports due.
- (12/15-19) **Final Examination**

Douglas Alan Miskowiak

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Stevens Point, WI 54481
715-342-1947
dmiskowi@uwsp.edu

GIS Center
Science Building – 2001 Fourth Avenue
Stevens Point, WI 54481
715-346-4789

Current Title: GIS Education Specialist, GIS Center – Department of Geography/Geology, University of Wisconsin, Stevens Point

Education

Master of Science, Department of Urban and Regional Planning, University of Wisconsin, Madison, December 2001.

Bachelor of Science, Department of Landscape Architecture, University of Wisconsin, Madison, May 1998.

Associate Degree, University of Wisconsin, Marathon Center, May 1995.

Teaching Experience

Technical Trainer, UWSP GIS Center Training Program. GIS Center, University of Wisconsin, Stevens Point, 2011-Present.

Instructor, Geography 279: Fundamentals of Geographic Information Systems. 2009 - Present. University of Wisconsin-Stevens Point.

Instructor, Geography 486/686: GIS and GPS Applications for Forestry Management. 2012 - Present. University of Wisconsin-Stevens Point.

Instructor, Geography 473/673: GIS Applications for Working Lands and Operations. 2011 - Present. University of Wisconsin-Stevens Point.

Technical Trainer, Esri Authorized Instructor and GIS Instructor. GIS Center, University of Wisconsin, Stevens Point, 2011-2012.

Instructor, Geography 476/676: Introduction to Geographic Information Systems. 2009. University of Wisconsin-Stevens Point.

Technical Trainer, Plan Commission Workshops and support of College Land Use Faculty, Center for Land Use Education, University of Wisconsin, Stevens Point, 2002-Current.

Technical Trainer, Geographical Information Systems for Land Planning and Management, Land Information and Computer Graphics Facility, University of Wisconsin, Madison. 1999-2001.

Teaching Assistant, Landscape Inventory and Evaluation Methods, Department of Landscape Architecture, University of Wisconsin, Madison. Fall 2000.

Professional Experience

GIS Education Specialist, GIS Center, Department of Geography/Geology, University of Wisconsin – Stevens Point. 2009 – Current.

GIS/Land Use Specialist, Center for Land Use Education, University of Wisconsin-Stevens Point, 2001 - 2009.

Research Assistant, National Consortium for Rural Geospatial Innovations in America, University of Wisconsin, Madison, 2001.

Project Assistant, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 2000.

Associate Outreach Specialist, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 1998, 1999.

Student Hourly, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 1997, 1998.

Land Survey Assistant, Remedial Engineering, Wausau, Wisconsin, June 1994 – August 1994.

Professional Service

Member: Wisconsin Land Information Association, 1997 - current.

Member: American Planning Association, 2000-2001

Member: Urban and Regional Information Systems Association, 1999-2001

Board of Directors: Wisconsin Land Information Association, 2007 - 2010.

Papers and Publications

Peer Reviewed Journals

Onitilo AA, Engel JM, Liang H, Stankowski RV, Miskowiak DA, Broton M, Doi SA. Mammography utilization: patient characteristics and breast cancer stage at diagnosis. Am J Roentgenol. In press.

Onitilo AA, Liang H, Stankowski RV, Engel JM, Broton M, Doi SA, Miskowiak DA. Geographical and season barriers to mammography services and breast cancer stage at diagnosis. Submitted to J Rural Health.

Books

Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.). (2011). *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Niemann, Bernard J. (2011). Chapter 11 – Defining Planning Questions and Functionality. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Ventura, Stephen J. (2011). Chapter 15 – Planning Analyst Module 2: Analyze – Putting Spatial Data into Action. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Ventura, Stephen J. Niemann, Bernard J. (2011). Chapter 18 – Lessons Learned: Did Better Tools Yield Better Results? In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

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COLS Undergraduate Education Initiative. 2010. “New Protocol for Receiving, Archiving, and Distributing GIS Data.” \$1,985.

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National Consortium for Rural Geospatial Innovations. 2007. “Moose Lake Island Legacy Initiative.”

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United States Department of Agriculture, Cooperative State Research, Education and Extension Service, National Research Initiative Competitive Grants Program. “Factors influencing land parcelization in amenity rich rural areas and the potential consequences of planning and policy variables,” Submitted with CLUE staff for 2005-2009 funding, \$380,000.

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DRAFT

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

Course Title

Geodesign Methods

Transcript Title (limit 30 characters)

Geodesign Methods

Three-digit course number

631

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

No

Note the crosslisted subjects

What is the primary divisional affiliation of this course?

Arts & Humanities

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Fall

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

Geodesign process methods and techniques for the planning and design fields. Data collection, analysis, visualization, communication, resource allocation, impact evaluation, and monitoring using geospatial technologies.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Prerequisites: Students must have existing GIS experience or have taken a GIS refresher course: UW-Madison Geography 377, UW-Stevens Point Geography 377 or equivalent. Work experience demonstrating mastery of core GIS principles and competency is an acceptable substitute. Enrollment limited to students in the Geodesign Certificate Program.

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Laboratory

Lecture

Administrative Information

Chief Academic Officer

John A Harrington

Designee of chief academic officer for approval authority

Deborah A Griffin; Evelyn A Howell

If there are additional contacts, please list

Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com>, Douglas Miskowiak (Doug.Miskowiak@uwsp.edu)

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course

Beginning Term

Fall 2014-2015

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

Yes

Which program?

Geodesign Certificate

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

This course will be one of five courses designed for the Geodesign Capstone Certificate between UWSP and UW-Madison.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

This course will count as a prerequisite for LA633: Geospatial Approaches to Conservation Design and Adaptation and LA671:GIS and Geodesign for Sustainability and Resiliency

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

Topical, lecture material will be presented weekly via either synchronous online webinars or asynchronous online video lectures, or voice-over power points, and be paired with supplemental material in the form of web-links and readings. Students will engage in guided weekly asynchronous online discussions, complete six module assignments, and a preliminary project proposal focused on Geodesign methodologies. 15 weeks

*Module 1: Representation Model Methods (Week 1-2) * Week 1 - Topic & Discussions: Types of Spatial Data and Identifying Primary and Secondary Data Sources * Week 2 - Topic & Discussions: Primary and Secondary Spatial Data Collection Technology and Methods*

*Module 2: Process Model Methods (Week 3-4) * Week 3 - Topic & Discussions: Types of Process Models and Appropriate Technology * Week 4 - Topic & Discussions: Process Model Data Needs*

*Module 3: Evaluation Model Methods (Week 5-6) * Week 5 - Topic & Discussions: Criteria and Technology for Evaluation * Week 6 - Topic & Discussions: Attractiveness, Vulnerability, and Risk*

*Module 4: Change Model Methods (Week 7-8) * Week 7 - Topic & Discussions: Phases and Types of Change Modeling * Week 8 - Topic & Discussions: Specifying Change Models*

*Module 5: Impact Model Methods (Week 9-11) * Week 9 - Topic & Discussions: Existing Impact Models and Metrics * Week 10 - Topic & Discussions: Applying Impact Models and Appropriate Technology I * Week 11 - Topic & Discussions: Applying Impact Models and Appropriate Technology II*

*Module 6: Decision Model Methods (Week 12) * Week 12 - Topic & Discussions: Methods for Determining Decision Models*

*Final Project: Preliminary Project Proposal (Week 13-15) * Week 13 - Topic and Discussion: Overview of Preliminary Project Methodology Proposal * Week 14 - Topic and Discussion: Peer Reviews of Preliminary Project Proposals * Week 15 - Topic and Discussion: Project Proposals Submissions and Reviews*

LEARNING OBJECTIVES

*Theoretical Learning Outcomes * Students will gain an understanding of Geodesign process methods, specifically how to tailor data collection, data analysis, and visualization and communication for a variety of Geodesign project contexts. * Students will become aware of the various methods and tools available for use in the Geodesign process. * Students will be able to select appropriate methods and tools for a variety of Geodesign contexts and project types. * Students will learn the capabilities and limitations of geographic data and its use in Geodesign process.*

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

At UW-Madison a GIS Certificate is offered by the Department of Geography. The proposed Geodesign Capstone Program, however, is different in several regards. First, the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional projects. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly, however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Geodesign Program will focus on the use of GIS and other geospatial technology to solve design problems. In a way what is taught in the GIS Certificate program can be seen as a prerequisite for the Geodesign Program. GIS is the art and science of "what is and how it came to be" whereas geodesign can be seen as the art and science of using geospatial information in the realm of "what could be." The Department of Geography has been consulted about the Geodesign Program and wrote a letter of support for a Geodesign Program Educational Innovation (EI) grant in March, 2013. The letter states that Geography does not anticipate that the Geodesign Program would compete with existing, residence programs in Cartography and GIS or duplicate the department's mission to provide core competencies in GIS. The Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

*Community & Environmental Soc (864)
Forest And Wildlife Ecology (396)
Zoology (970)
Urban And Regional Planning (944)
Civil and Environmental Engr (240)
Envir St - Gaylord Nelson Inst (360)
Geography (416)
Geoscience (420)*

List the instructor name and title (list multiple if applicable)

Travis Flohr, Faculty Associate, UW-Madison

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

Travis is currently finishing his PhD at the University of Colorado Denver. He holds masters and bachelors degrees in Landscape Architecture. He has over 5 years of experience in curriculum development in Geodesign and geographic information systems (GIS). He has taught both graduate and undergraduate students. He has worked in classroom and online settings. He has several publications about geodesign and GIS in planning and design.

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

Final Syllabus_631.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This course is one of two foundation courses that are part of the proposed fifteen-credit Geodesign Certificate.

Provide an estimate of the expected enrollment

Full enrollment is anticipated to be 20-30 students.

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

The course will meet for 15 weeks. There will be two hours of lectures and two hours of lab per week. Weekly discussions will also be included.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of a proposed Geodesign Capstone Program. The program is an interdisciplinary initiative within the University of Wisconsin System. The initiative is being led by the Department of Landscape Architecture at UW-Madison and the Department of Geography and Geology/GIS Center at UW-Stevens Point. The State Cartographer's Office (Department of Geography, UW-Madison) is a key partner and acts as a neutral party and liaison between the two departments. The Geodesign Program will follow a "home campus model." A graphic of this model is on page 3 (Figure 1: Geodesign Certificate Program Home Campus Model) of the attached Geodesign Capstone Program proposal. There will be a total of five three-credit courses. All courses will be offered online. Faculty from each program will be responsible for teaching 1 foundation course and a second advanced course. The fifth course will be a capstone experience taught by faculty from both campuses. Courses will be cross listed between the Department of Landscape Architecture at UW-Madison and the Department of Geography/Geology at UW-Stevens Point. All courses will be taught online. Uploaded a corrected syllabus.

Additional attachments (optional) (please read "help" before uploading an attachment)

GeodesignAPC Doc_Dec12_2013_JH..pdf

Travis_Flohr-UW_Geodesign_CV.pdf

LA631_Geodesign_Methods_Syllabus_Draft_TLF_DBH_12312013.pdf

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

LANDSCAPE ARCHITECTURE 631: Geodesign Methods

(3 Credits)

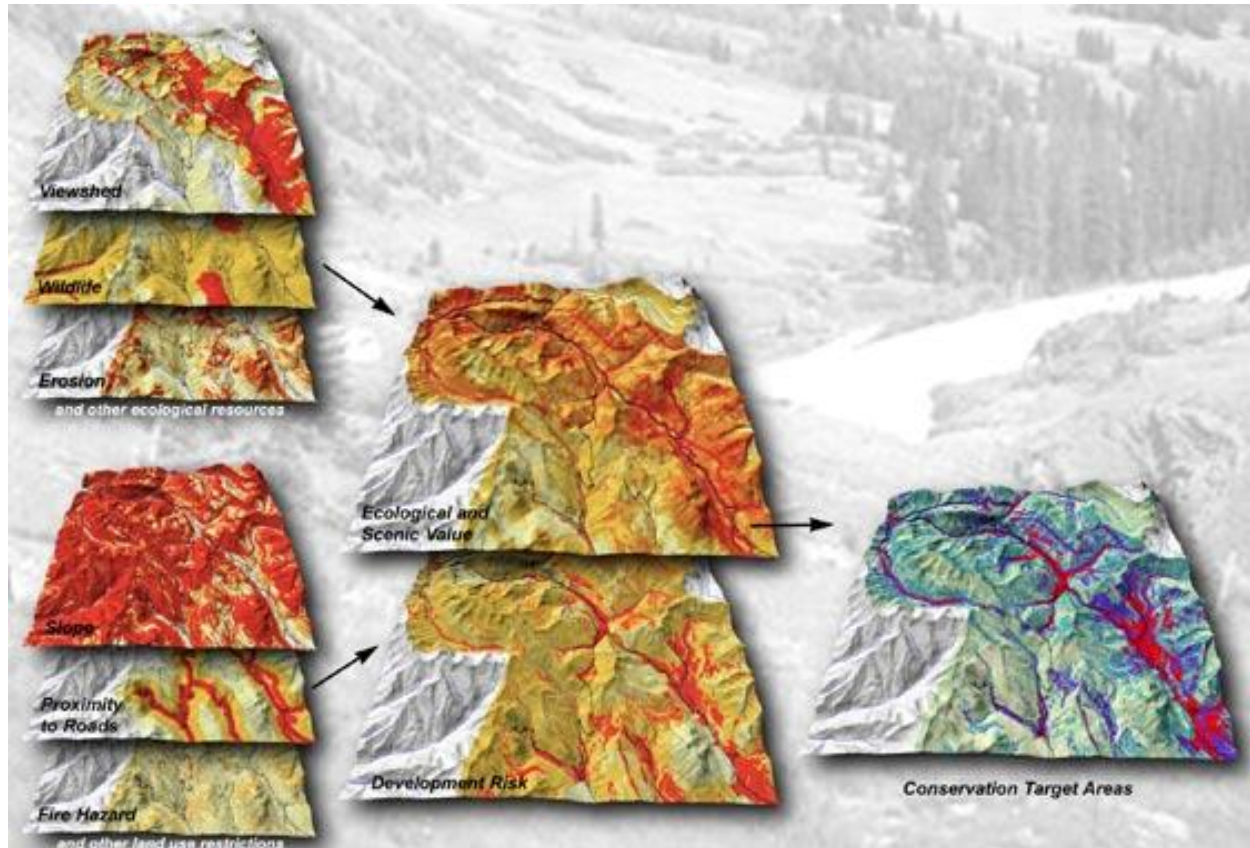


Image: Computer Terrain Mapping (CTM)

Instructor: Travis Flohr

Course meeting times: Asynchronous online

OVERVIEW OF COURSE STRUCTURE AND SCHEDULE

Topical, lecture material will be presented weekly via either synchronous online webinars or asynchronous online video lectures, or voice-over power points, and be paired with supplemental material in the form of web-links and readings. Students will engage in guided weekly asynchronous online discussions, complete six module assignments, and a preliminary project proposal focused on Geodesign methodologies.

15 weeks

Module 1: Representation Model Methods (Week 1-2)

- Week 1 – Topic & Discussions: Types of Spatial Data and Identifying Primary and Secondary Data Sources
- Week 2 – Topic & Discussions: Primary and Secondary Spatial Data Collection Technology and Methods

Module 2: Process Model Methods (Week 3-4)

- Week 3 – Topic & Discussions: Types of Process Models and Appropriate Technology
- Week 4 – Topic & Discussions: Process Model Data Needs

Module 3: Evaluation Model Methods (Week 5-6)

- Week 5 – Topic & Discussions: Criteria and Technology for Evaluation
- Week 6 – Topic & Discussions: Attractiveness, Vulnerability, and Risk

Module 4: Change Model Methods (Week 7-8)

- Week 7 – Topic & Discussions: Phases and Types of Change Modeling
- Week 8 – Topic & Discussions: Specifying Change Models

Module 5: Impact Model Methods (Week 9-11)

- Week 9 – Topic & Discussions: Existing Impact Models and Metrics
- Week 10 – Topic & Discussions: Applying Impact Models and Appropriate Technology I
- Week 11 – Topic & Discussions: Applying Impact Models and Appropriate Technology II

Module 6: Decision Model Methods (Week 12)

- Week 12 – Topic & Discussions: Methods for Determining Decision Models

Final Project: Preliminary Project Proposal (Week 13-15)

- Week 13 – Topic and Discussion: Overview of Preliminary Project Methodology Proposal
- Week 14 – Topic and Discussion: Peer Reviews of Preliminary Project Proposals
- Week 15 – Topic and Discussion: Project Proposals Submissions and Reviews

LEARNING OBJECTIVES

Theoretical Learning Outcomes

- Students will gain an understanding of Geodesign process methods, specifically how to tailor data collection, data analysis, and visualization and communication for a variety of Geodesign project contexts.
- Students will become aware of the various methods and tools available for use in the Geodesign process.
- Students will be able to select appropriate methods and tools for a variety of Geodesign contexts and project types.
- Students will learn the capabilities and limitations of geographic data and its use in Geodesign process.

Technological Learning Outcomes

- Students will gain an understanding of the pros and cons of each piece of software and how to use it appropriately based on the type of data and the software's appropriateness for each phase of a Geodesign process.
- Students will gain an understanding of how to input and transfer data throughout each piece of software as needed in a Geodesign process.
- Students will develop an understanding of how to input and create new data and setup projects in each piece of required software.
- Students will develop an advanced understanding of ArcGIS analysis methods and tools.
- Students will develop an understanding of SketchUP, CityEngine, and CommunityVIZ.

TEXTS

| Steinitz, C. (2012). *A Framework for Geodesign*

REPRESENTATIVE LIST OF READINGS

Deming, M. Elen, and Simon Swaffield. *Landscape Architectural Research: Inquiry, Strategy, Design*. Wiley. com, 2011

Maguire, D. J., Batty, M., & Goodchild, M. F. (2005). *GIS, Spatial Analysis, and Modeling*. Redlands, California: ESRI Press.

Mitchell, A. (1999). *The ESRI Guide to GIS Analysis Volume 1: Geographic Patterns & Relationships* (Vol. 1, p. 186). Redlands, California: ESRI Press.

Mitchell, A. (2009). *The ESRI Guide to GIS Analysis Volume 2: Spatial Measurements & Statistics* (Vol. 2, p. 237). Redlands, California: ESRI.

Mitchell, A. (2012). *The ESRI Guide to GIS Analysis Volume 3: Modeling Sustainability, Movement, and Interaction* (Vol. 3, p. 419). Redlands, California: ESRI Press.

STUDENT EVALUATION

There will be no exams in this course. With the exception of topical weekly discussions, all work will be project based. Students will be evaluated on the successful completion of projects designed to engage students in the main topics of each of the six course modules: Representative Models, Process Models, Evaluation Models, Change Models, Impact Models, and Decision Models. In addition to completing weekly discussions and module projects students will provide written evaluations of their projects. The final project is a preliminary project proposal, focusing on Geodesign methodology that will require students to demonstrate their knowledge of the entirety of the course and each module presented within the course.

ASSIGNMENTS:

Module 1: Representation Model Methods - 10 Points

Define a topic of interest and write about the following: data requirements, identify the types and sources for secondary data, define potential technology requirements for data collection, draft a data collection instrument, including metadata, and compile a sample dataset.

Module 2: Process Model Methods - 10 Points

Using your topic of interest from the previous week and provide a write-up describing and demonstrating the following: describe the appropriate data model, describe and choose the appropriate model, describe the correct data needs, and pilot the model to your topic.

Module 3: Evaluation Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: define appropriate criteria, particularly related to attractiveness, vulnerability, and risk for evaluation models related to your topic, define appropriate technologies, and pilot the evaluation model methods on your topic.

Module 4: Change Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: two rough draft change models that are typical of 'sustainable design' related to your topic, visualize these changes, and define the appropriate technologies for modeling changes.

Module 5: Impact Model Methods - 15 Points

Use your topic of interest from the previous weeks and provide a write-up describing and demonstrating the following: the varying types of impact model content, the scope and precision needed for your impact modeling, define the potential technologies for modeling impacts related to change models, and piloting an impact model based on your two change models.

Module 6: Decision Model Methods - 5 Points

Use your topic of interest from the previous weeks and provide a write-up describing the following: the kinds and appropriateness and weaknesses of values, objectives and requirements typically associated with your topic, levels of decision making typically associated with your topic, and the appropriate scales and levels of decision making.

Final Project: Project Proposal - 100 Points

Preliminary project proposal for capstone project, focused on Geodesign methodology.

Weekly Discussion Participation 75 points

Total Course Points: 250 Points

GRADING POLICY

Qualitative Level Achieved	Letter Grade	Percentage Range	Point Range
Brilliant; highly inspired, faultless	A	93-100	
Nearly brilliant & faultless; quite inspired	A-	90-92.99	
A level above 'strong'; special in some way	B+	87-89.99	
Strong; solid	B	83-86.99	
Basically strong; a few minor weaknesses	B-	80-82.99	
Basics present; some key elements missing; significant errors or weaknesses	C+	77-79.99	
Done but many key elements missing or errors present; consistently weak or uninspired	C	70-76.99	
Barely acceptable; major gaps and weaknesses	D	60-69.99	
Missed the point; substantially incomplete; unexcused lateness	F	< 60	

Travis Lee Flohr

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Boulder, CO · 80302

Website: <http://www.iecostudio.com>

Summary of Qualifications

- **Six years** professional experience
- Over **5 years** of curriculum development in Geodesign, geographic information systems (GIS), landscape architecture, environmental design, and urban and regional planning.
- **Extensive computer training:** ESRI's ArcGIS Desktop, Adobe Software, AutoCAD, open-source GIS (Grass and QGIS), web GIS (Google Earth, Google Maps, PostGIS/PostGRES), course management software, SPSS, Microsoft Office, SketchUP, and e-on software VUE.

Education

Ph.D.

The University of Colorado Denver
Fall 2011 - to present

Doctoral Program in the College of Architecture and Planning with an emphasis in Design and Planning, Sustainable and Healthy Environments. (Advisor: Brian Muller, Ph.D.)

MSLA

The Pennsylvania State University
2008 - December 2011

Master of Science in Landscape Architecture - Thesis: *Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning.* (Advisor: Timothy Murtha, Jr, Ph.D.)

Professional BLA

The Pennsylvania State University
1997 - 2002

Professional Bachelors Degree of Landscape Architecture.

Teaching Experience

Full-Responsibility Instructor

LDAR 6686

The University of Colorado Denver
Fall 2013

Introduction to GIS (Graduate)

Responsibilities: Development of new course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, workshops, video tutorials, and grading).

MURP

The University of Colorado Boulder
Summer 2013 – Fall 2013

Planning Workshop (Graduate)

Responsibilities: Created assignments, scripted, developed, and delivered tutorial videos related to planning and design methodologies for an e-learning hybridization of planning studio instruction for the following software: ESRI ArcGIS Desktop, Adobe Photoshop, Adobe Illustrator, Adobe InDesign, and Trimble SketchUP

ENVD 3152

The University of Colorado Boulder
Summer 2012

GIS (Undergraduate)

Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.

ENVD 4352

The University of Colorado Boulder
Spring 2012

Geodesign and the Web (Undergraduate)

Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.

LArch 151

The Pennsylvania State University
Fall 2010

Introduction to Design Visualization – freehand and perspective drawing (Undergraduate)

Responsibilities: Developed a course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, and grading).

Accreditation
Accreditation Assistant

The Pennsylvania State University
Fall 2010

The Pennsylvania State University Landscape Architecture Self Evaluation Report for Bachelor Degree Accreditation
Responsibilities: Compiled and produced the accreditation report and exhibit design.

Teaching Assistant/Instructor (facilitated curriculum development and delivery, but was not instructor of record).

ENVD 4363

The University of Colorado Boulder
Maymester 2013

Open Space Systems Studio (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips.

ENVD 2130

The University of Colorado Boulder
Spring 2013

Landscape Design Studio (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. GIS lectures, workshops, and video tutorials).

LDAR 5502

The University of Colorado Denver
Spring 2013

Landscape Design Studio II (Undergraduate)

Responsibilities: Developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery for GIS instruction (i.e. GIS lectures, workshops, video tutorials, and grading).

ENVD 3124

The University of Colorado Boulder
Fall 2012

Issues in Planning History (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures and grading).

ENVD 2120

The University of Colorado Boulder
Fall 2012

Environmental Urban Design Lab/Studio: Sustainable Design (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. GIS lectures).

LArch 332

The Pennsylvania State University
Spring 2010

Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)

Responsibilities: Filled in for a professor on emergency leave. : Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. lectures and grading).

Teaching Assistant**ARCH 3114**

The University of Colorado Boulder
Fall 2013

Architectural History (Undergraduate)

Responsibilities: Grading, office hours, and managing course management software.

ENVD 2120

The University of Colorado Boulder
Fall 2010

Environmental Urban Design Lab/Studio – Sustainable Design (Undergraduate)

Responsibilities: Developed and delivered GIS tutorial demonstrations, office hours, and compiled GIS data.

LArch 321

The Pennsylvania State University
Fall 2009

Regional Site Planning and Design Seminar (Undergraduate)

Responsibilities: Developed courses reading assignments, reading list, grading rubrics, and grading student assignments.

LArch 311 The Pennsylvania State University Fall 2009	<i>Regional Site Planning and Design Studio (Undergraduate)</i> Responsibilities: Kept student attendance records, assisted in grading student assignments, provided GIS technical support and lectures.
LArch 341 The Pennsylvania State University Fall 2008	<i>Plants, Places, People an ecosystem approach to design, planning, and management of the land (Undergraduate)</i> Responsibilities: Kept student attendance records and assisted in grading student assignments.

Research Experience

Research Assistant The University of Colorado August 2011 - to present	<i>"Phenology and Heat Island Effect of Green Infrastructure in Cities: A window into ecosystem services in urban environments"</i> Responsibilities: Co-developing research design, literature review, GIS mapping, remote sensing, and spatial/statistical analyses.
Research Assistant The University of Colorado Denver May 2013 – to present	Responsibilities: Compiled and created wildfire assessment of historic vegetation maps and spatial analysis for Rocky Mountain National Park.
Research - Co-Principal Investigator The University of Colorado Boulder May 2013 - to present	<i>Visitation and Use on Boulder County's Regional Trails</i> Responsibilities: Co-developed research proposal, grant application, observation instrument, collected field observations, compiled and computed statistical analyses, and written report.
Intern/Research Manager The Access Fund/Boulder Climbing Community May 2012 - September 2013	<i>Boulder Canyon User Study</i> Responsibilities: Developed a survey and user/car count instrument, provided statistical analyses, and a report for understanding climber use of Boulder Canyon, Boulder, Colorado.
Research Assistant The University of Colorado August 2011 - August 2012	<i>City of Boulder/University of Colorado Sustainability Indicators Project</i> Responsibilities: Co-developed and implemented research design, literature review, GIS mapping, content analysis, spatial analysis, city-wide sustainability metrics, survey instrument, interviews, interview coding, and document analysis.
Research Assistant The University of Colorado Boulder Spring 2012	<i>GIS Assistant</i> Responsibilities: Developed GIS resources within the Environmental Design (ENVD) Program including, data acquisition, cleaning, editing, and GIS technical support.
Research Assistant The University of Colorado Boulder Spring 2012	<i>Urban Futures Lab Assistant</i> Responsibilities: Developed a new website and marketing information for the Urban Futures Lab (formerly the Land Use Futures Lab) http://urbanfutureslab.colorado.edu .
Research Assistant The Pennsylvania State University Summer 2010	<i>The Art of Envisioning Landscape (Umění Předvídání Terénu)</i> Responsibilities: Co-authored a report including production, editing, compilation, and art exhibit design, based on a service learning trip to Czech Republic.
Research Assistant The Pennsylvania State University Summer 2010	<i>2011 Exhibition: Re-collections and Re-visions</i> Responsibilities: Printed and compiled student's art for an art exhibit in Praha, Czech Republic.

Research Assistant

The Pennsylvania State University
Fall 2009 - Spring 2010

geoSPATIAL DESIGN: GIS, RELATIONAL DATABASES, AND DEDICATED COMPUTING.

Responsibilities: Provided GIS support for various studios' within the School of Architecture and Landscape Architecture, as well as numerous faculty research projects. Also, provided guidance in developing a hardware and software list for the proposal.

Research Assistant

The Pennsylvania State University
Fall 2008 - Spring 2009

Integrating Information: Bridging the Gap Between Geographic Information Systems and Building Information Modeling

Responsibilities: Provided project management and methodology documentation support.

Professional Experience**Layout Editor**

The Pennsylvania State University
May 2011 - to present

Wetland Science and Practice Journal

Responsibilities: Responsible for compiling quarterly issues and designing the journal layout.

Consultant

Computer Terrain Mapping
July 2013 - September 2013

Pea Ridge National Military Park

Responsibilities: Provided ArcGIS technical assistance in creating data conversion, database construction, and mapping symbology.

Project Manager

Frederick Seibert & Associates, Inc.
Jan. 2003 - Aug. 2008

Responsibilities: Managed all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design. Total constructed projects exceed \$500,000,000 dollars in construction costs.

Designer

Frederick Seibert & Associates, Inc.
May 2002 - Jan 2003

Responsibilities: Designed projects through all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design.

Refereed Book Chapters

Muller, Brian, **Travis Flohr** and Mehdi Heris. 2013.

Urban Morphology and Heat: Exploring the Relationships. In Francesco Moccia (ed.)

Sustainable Stormwater Management Infrastructures: Principles and Guidelines. CLEAN Press. (In Press)

Professional Reports

Flohr, Travis and Stacey Schulte. *Visitation and Use on Boulder County's Regional Trails* (Boulder County, CO: Boulder County Parks and Open Space, 2013).

Flohr, Travis. *Boulder Canyon User Study* (Boulder, CO: Access Fund, 2013).

Non-Refereed Publications

Flohr, Travis. "Communicating Design." *Landscape Architecture Foundation Blog*. Posted January 10, 2011. <http://lafoundation.org/news-events/blog/2011/01/10/osp-travis-flohr/>. (Invited blog post).

Flohr, Travis. "A Landscape Architect's Review of Building Information Modeling Technology." *Landscape Journal: design, planning, and management of the land* 30.1 (2011): 169-170.

Flohr, Travis, Steve Zoretich, and Andy Kalback. "Project Washington County Hospital" in *Celebrating 100 Years of Landscape Architecture Excellence at Penn State*. Edited by Mike Shamalla, Tim Padalino, and Adam McGuire, 62. Penn State Department of Landscape Architecture, 2007.

Publications Under Review

Flohr, Travis, Alessandro Rigolon, and Samuel Gallaher. "An Investigation into the Accessibility of Bicycle Infrastructure: A Mixed Methods Study" Submitted October 2013 to *The Journal of Mixed Methods Research*.

Rigolon, Alessandro and **Travis Flohr**. "Exploring children and youth's accessibility to urban green spaces: A GIS study measuring access opportunities for formal and informal play." Submitted October 04, 2013 to the *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Publications Under Preparation for Submission

Muller, Brian, Mehdi Heris, and **Travis Flohr**. "Urban Morphology and Heat: Exploring the relationships." for Summer/Fall 2014 submission to *Journal of the American Planning Association*.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr**, and Mehdi Heris. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments" for Summer/Fall 2014 submission, journal to be determined.

Rigolon, Alessandro, **Travis Flohr**, and Nancy Leech. Tentative title, "Mixed Research in Design and Planning: A Mixed Research Investigation of Trends in the Literature." for Summer/Fall 2014 submission to the *Journal of the American Planning Association*.

Flohr, Travis. "The Equity of Green Infrastructure within Cities: An exploration of Denver, Colorado's urban forest." for Spring 2014 submission to the *Landscape Journal: design, planning, and management of the land*.

Rigolon, Alessandro and **Travis Flohr**. "Access to Parks for Youth as an Environmental Justice Issue: Access Inequalities and Possible Solutions." for January submission to *Buildings*. An invited special issue publication.

Flohr, Travis, Timothy Murtha, Jr, and Michael Hinke. "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." for Fall/Winter 2013 submission to *The Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Flohr, Travis. "GIS and the iPad." for Fall 2013 submission to the *Landscape Journal: design, planning, and management of the land*.

Refereed Presentations

Rigolon, Alessandro and **Travis Flohr**. "Exploring Children and Youth's Accessibility to Urban Green Spaces: A GIS Study Measuring Access Opportunities for Formal and Informal Play." Paper presented at the 2013 Joint AESOP/ACSP Congress, July 15-19, 2013, Dublin, Ireland.

Muller, Brian, Mehdi Heris, and **Travis Flohr**. "Urban Morphology and Heat: Exploring the relationships." Paper presented at the 2012 *The Association of Collegiate Schools of Planning*, November 1-4, 2012, Cincinnati, Ohio.

Muller, Brian, **Travis Flohr**, and Mehdi Heris. "Heat and city design: reassessing the relationship between urban heat island effects and built morphology." Paper presented at the 2012 *Association of European Schools of Planning*, July 11-15, 2012, Ankara Turkey.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr**, Mehdi Heris, and Mahda Mohammadbagher. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments." Paper presented at the 2012 *Ecological Society of America*, August 5-10, 2012, Portland Oregon.

Muller, Brian, Mehdi Heris, **Travis Flohr**, Saharnaz Mirzazad, Mahda Mohammadbagher, Daryoosh Ardalan, and Sam Assefa. "Measuring Sustainable Urban Form: Developing metric and indicators for the City of Boulder, CO." Paper presented at the *52nd Annual Association of Collegiate Schools of Planning Conference: ENVISION*, October 13-16, 2011, The University of Utah.

Flohr, Travis, Timothy Joice, and Ceci Rusnak. (2010). "Encountering Czech Agricultural History in a Community Engagement Studio." Paper presented at the 2010 *Agricultural History Society Conference*, June 10-12, Winter Park, Florida.

Flohr, Travis and Timothy Murtha, Jr. (2010). "Participatory Planning: A look at website content and interactivity to maximize educational potential." Paper presented at the 2009-2010 *Council of Educators in Landscape Architecture Conference*, May 12-14, Maastricht, Netherlands.

Invited Guest Lectures

Rigolon, Alessandro and **Travis Flohr**. (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The City of Boulder Parks and Recreation Department, Boulder, CO.

Flohr, Travis and Stacey Schulte. (June 7, 2013). Trail and Recreation Use. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis and Alessandro Rigolon. (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (June 7, 2013). Habitat Fragmentation and Subdivisions. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (April 04, 2013). GIS and Sustainable Development. *Sustainable Community Development II*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis (November, 15, 2012). Environmental Impact Assessment: A case study using the Maryland Forest Conservation Ordinance. *Environmental Impact Assessment*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (November 14, 2012). Evaluating Design and Policies: Spatially understanding complex systems. *Introduction to GIS*. Lecture conducted from The University of Colorado Denver, Denver, CO.

Posters

Gallaher, Samuel, Alessandro Rigolon, **Travis Flohr**, and Pawinee Chuayprakong. (2013). "Bike Share Equity and Efficiency: A Mixed Methods Approach." Poster presented at the *16th Annual Research and Creative Activities Symposium*. University of Colorado, Denver, April 19, 2013.

Buma, Brian, Brian Muller, Carol Wessman, **Travis Flohr**, Mehdi Heris, and Mahda Mohammadbagher. (2012). "Assessing the Benefits of Green Infrastructure: The Dynamics of Landscape Decision, Built Morphology, and Ecosystem Services." Poster presented at the *2012 United States Regional Association of the International Association for Landscape Ecology: Informing Decisions in a Changing World Annual Symposium*. Newport, Rhode Island, April 8-12, 2012.

Buma, Brian, **Travis Flohr**, Mehdi Heris, Mahda Mohammadbagher, Daryoosh Ardalan, Brian Muller, and Carol Wessman. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the *2012 Front Range Student Ecology Symposium*. Colorado State University, Fort Collins, Colorado, February 21-22, 2012.

Wessman, Carol, Brian Muller, Brian Buma, Mehdi Herris, **Travis Flohr**, Mahda Mohammadbagher, and Daryoosh Ardalan. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the Spring 2012 *Cooperative Institute for Research in Environmental Sciences: Innovative Research Program Poster Session*. University of Colorado Boulder, Boulder, Colorado.

Flohr, Travis and Timothy Murtha. (2010). "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." Poster presented at the 2010 *Penn State Graduate Exhibition*, March 28, 2010, University Park, Pennsylvania.

Exhibitions

Flohr, Travis (2011). "LAYERS (Vrstvy)." Exhibited in *2011 Exhibition: Re-collections and Re-visions*. Curated by Cecilia Rusnak and Ann Tarantino. Vyšehrad Gallery, Prague, Czech Republic.

Grants and Contracts

Flohr, Travis and Stacey Schulte. (2013). *Visitation and Use on Boulder County's Regional Trails*. Small Grant Proposal to Boulder County Parks and Open Space. Boulder County, Colorado. (\$9,000).

Hinke, Michael, **Travis Flohr**, and Nader Afzalan. (2013). *Software Training for Designers and Planners – Department of Planning and Design, University of Colorado Denver Fall 2013*. Department of Planning and Design, College of Architecture and Planning University of Colorado, Denver. (\$6,000)

Beck, Jody. (2013). *Inventory of Urban Agricultural Potential for the Denver Metropolitan Area*. Center for Faculty Development University of Colorado, Denver. (\$10,000 - not funded, role of research assistant).

Derr, Victoria, John Lanterman, and **Travis Flohr**. (2013). *Sustainable and Productive Landscapes: Exploring the Potential for Learning Laboratories on the CU Campus and Boulder Community*. University of Colorado, Boulder SEED Grant Program University of Colorado, Boulder. (\$47,650 - not funded).

Flohr, Travis. (2012). *Fall 2013 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received two excellent and one very good review).

Flohr, Travis. (2011). *Fall 2012 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received one excellent and two very good reviews).

Service

University
GIS and Technology in Design and Planning Certificate
University of Colorado Denver
Advisor

Advised the Department of Planning and Design on GIS Certificate coursework and curriculum development.

University
The Master Gardener Program
The Pennsylvania State University
Lecturer

Instructed the "Landscape Design" portion of Penn State's Master Gardener Program.

Academy
2011 CELA Conference Publication
Peer Reviewer

Peer Reviewer for the 2011 Council of Educators in Landscape Architecture (CELA) Conference, *urban nature*, proceedings publication.

Profession <i>Frederick Seibert & Associates, Inc.</i> High School Mentor	Mentored two Greencastle-Antrim High-School work-study students.
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Awards and Honors

ASLA Student Merit Award Pennsylvania-Delaware Chapter Spring 2010	The American Society of Landscape Architecture Student Merit Award
Creative Achievement Award The Pennsylvania State University Spring 2010	The Pennsylvania State University, College of Arts and Architecture Landscape Architecture Graduate Student Creative Achievement Award
Olmsted Scholar The Pennsylvania State University Spring 2010	2010: Penn State Olmsted Scholar
Penn State Graduate School Poster Exhibition The Pennsylvania State University Spring 2010	The Pennsylvania State University Graduate Student Poster Exhibition: 2nd Place Finisher (\$250.00 Prize)
Golden Key The Pennsylvania State University Fall 2008 - Spring 2009	A Golden Key International Honour Society inductee by placing in the top 15% of my class at The Pennsylvania State University.

License(s), Membership(s), and Affiliation(s)

RLA 2007 - 2013	Registered Landscape Architect: Pennsylvania
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Professional Training

Wetland Delineation Field Practicum May 22-23, 2004	Wetland Training Institute
Wetland Delineation Certification Program May 17-21, 2004	Wetland Training Institute
Maryland Forest Conservation Qualified Professional Training May 17, 2003	Carroll County Community College

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

Course Title

Geospatial Approaches to Conservation and Adaptation

Transcript Title (limit 30 characters)

Conservation Design

Three-digit course number

633

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

No

Note the crosslisted subjects

What is the primary divisional affiliation of this course?

Arts & Humanities

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Spring

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

Students will explore and use applications of GIS particularly related to landscape ecology, environmental analysis, and conservation design.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

LA/Geog 630: Intro to Geodesign LA/Geog 631: Geodesign Methods

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Laboratory

Lecture

Administrative Information

Chief Academic Officer

John A Harrington

Designee of chief academic officer for approval authority

Deborah A Griffin; Evelyn A Howell

If there are additional contacts, please list

*Janet Silbernagel (jmsilber@wisc.edu), Travis Flohr (tflohr@wisc.edu) Doug Miskowiak (Doug.Miskowiak@uwsp.edu)
Howard Veregin (veregin@wisc.edu), Doug Hadley (dbhadley@wisc.edu)*

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course

Beginning Term

Spring 2014-2015

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

Yes

Which program?

Geodesign Certificate

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

This course will be one of five courses designed for the Geodesign Capstone Certificate between UW-Stevens Point and UW-Madison.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

This course will a prerequisite for the capstone course in the certificate program.

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

This online lecture, discussion, and lab course is designed specifically for students in the GeoDesign Certificate program. Students will explore and use applications of GIS particularly related to landscape ecology, environmental analysis, and conservation design. Engaged students will: a. learn/practice how to solve spatial environmental questions; b. proficiently apply design thinking toward conservation and adaptation solutions

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

At UW-Madison a GIS Certificate is offered by the Department of Geography. The proposed Geodesign Capstone Program, however, is different in several regards. First, the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional projects. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly, however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Geodesign Program will focus on the use of GIS and other geospatial technology to solve design problems. In a way what is taught in the GIS Certificate program can be seen as a prerequisite for the Geodesign Program. The Department of Geography has been consulted about the Geodesign Program and wrote a letter of support for a Geodesign Program Educational Innovation (EI) grant in March, 2013. The letter states that Geography does not anticipate that the Geodesign Program would compete with existing, residence programs in Cartography and GIS or duplicate the department's mission to provide core competencies in GIS. The Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

*Community & Environmental Soc (864)
Forest And Wildlife Ecology (396)
Soil Science (908)
Zoology (970)
Urban And Regional Planning (944)
Civil and Environmental Engr (240)
Envir St - Gaylord Nelson Inst (360)
Geography (416)
Geoscience (420)*

List the instructor name and title (list multiple if applicable)

Janet Silbernagel, Professor, Landscape Architecture and the Nelson Institute, UW-Madison

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

[*LA633_Conservation_And_Adaptation_Syllabus_draft.pdf*](#)

Justifications

Explain how this course contributes to strengthening your curriculum

This course is one of two advanced courses that are part of the proposed fifteen-credit Geodesign Certificate program between the Department of Landscape Architecture, UW-Madison and the GIS Center/Department of Geography/Geology, UW-Stevens Point

Provide an estimate of the expected enrollment

20-30 students at maximum enrollment

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

The course will meet for 15 weeks. There will be 1 hour of lecture, 1 hour of discussion, and two hours of lab per week.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of a proposed Geodesign Capstone Program. The program is an interdisciplinary initiative within the University of Wisconsin System. The initiative is being led by the Department of Landscape Architecture at UW-Madison and the Department of Geography and Geology/GIS Center at UW-Stevens Point. The State cartographer's Office (Department of Geography, UW-Madison) is a key partner and acts as a neutral party and liaison between the two departments. The Geodesign Program will follow a "home campus model." A graphic of this model is on page 3 (Figure 1: Geodesign Certificate Program Home Campus Model) of the attached Geodesign Capstone Program proposal. There will be a total of five three-credit courses. Faculty from each program will be responsible for teaching 1 foundation course and a second advanced course. The fifth course will be a capstone experience taught by faculty from both campuses. Courses will be cross listed between the Department of Landscape Architecture

Additional attachments (optional) (please read "help" before uploading an attachment)

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

LA633

Geospatial Approaches to Conservation and Adaptation

3 credits

Spring 2015

University of Wisconsin

Dr. Janet Silbernagel, Professor

Course modules and goals

This online lecture, discussion, and lab course is designed specifically for students in the GeoDesign Certificate program. Students will explore and use applications of GIS particularly related to landscape ecology, environmental analysis, and conservation design. Engaged students will:

- a. learn/practice how to solve spatial environmental questions;
- b. proficiently apply design thinking toward conservation and adaptation solutions

The course is designed as three sequential modules, each building on the previous, while offering students flexibility to take the modules most relevant to their individual expertise and program:

1. Getting spatial: Emerging and foundational tools

In this module students will:

- a. be able to identify and formulate measurable spatial questions
- b. properly select and use geospatial tools to correctly solve basic spatial environmental questions
- c. proficiently work in the cloud with online spatial data and web maps

2. Getting specific: Landscape evaluation and conservation GIS

In this module students will:

- a. examine/analyze/compare complex conservation problems
- b. diagram/model/infer and form questions around specific conservation problems and scenarios

3. Getting complex: Modeling and adaptation strategies

In this module students will:

- a. synthesize potential environmental scenarios
- b. design/plan strategies for adaptation to landscape change

Prerequisites:

Students should have had an introductory course or work experience with basic GIS concepts and techniques, as well as foundational knowledge of ecology. Less emphasis is placed on recalling specific tools of particular GIS software. Those needing a contemporary update to their skills will benefit from Module 1.

Books & Materials

Module 1 – Getting Spatial:

The GIS Guide to Public Domain Data by Joseph J. Kerski & Jill Clark. 2012, ESRI Press. -- required

Module 2 - Getting Specific:

Conservation Planning by Craighead and Convis 2013, ESRI Press and/or www.conservationtraining.org

Module 3 – Getting Complex:

Conservation Planning by Craighead and Convis 2013, ESRI Press and/or www.conservationtraining.org

We will also supplement readings for some topics and post on the course site.

In addition, lab exercises will be drawn from a variety of sources & posted on Learn@UW, including:

GIS Tutorial II: Spatial Analysis Workbook, by D. Allen, and Making Spatial Decisions using GIS: A Workbook, by K.Keranen and R.Kolvoord, both ESRI Press – optional.

Computer lab and software:

All students will be issued student-licensed seats of ArcGIS 10.2. Space for spatial data and student assignments will be shared on a server allocated to this class, in the ClassData\$/663 folder. All students will be given access to this server and the software with their lab fee. In addition, for those wishing to work on campus, the Landscape Architecture Department has a regularly updated computer studio in 25 Ag Hall, equipped with department-licensed seats of ArcView 10.2. We will also use UW Moodle Courses to post updates, assignments, readings, etc.

Lab fee: \$30

Additional GIS training/support is offered through LICGF at http://www.lic.wisc.edu/gis_help.htm or ESRI's Virtual Campus – selected courses available to UW students free. Contact Math Heinzel for course options & codes at: whainzel@wisc.edu

To contact instructors:

Dr. Silbernagel at:

jmsilber@wisc.edu, 890-2600 (84 Sci)

Office Hours: tbd

TA at:

Office Hours: tbd

Course Format

The **lecture** of each week will present the current topic through an interactive online lesson. Material will be drawn from the text plus supplemental sources. Students are expected to complete the online lecture by COB Monday.

Lecture will be followed by an online **discussion** in which we will follow-up with responses to questions or summaries from the online lecture, provide more specific examples, and in many cases there will be a demo or tips for the lab assignment.

Weekly **lab** exercises provide practice on the given topic through a hands-on **exercise**. Please plan your lab time in conjunction with the TA's virtual office hours. Typically you should be able to complete ~50% or more of the weekly assignments in 2hr, (so allow 2-3 hours outside of virtual lab to complete). You will upload completed lab exercises the following week.

Challenges are longer, independent problem-solving exercises intended to bring together key concepts and tools from each of the modules. Challenges take the place of exams or projects/papers in this class and are the culminating assessment for each module. All instructions and any data included with the Challenges will be posted on the course Moodle site, and students will submit completed Challenges to an online dropbox by the stated due dates.

Readings for each week/topic will be noted as one of 2 categories:

^P – primary reading = comes from the primary class text & is necessary to understand harder concepts, especially for the Challenges.

^S – supplemental reading = supplements topics for lecture not covered in primary text

Supplemental readings (chapters from books or articles) will be given as citations and will be available usually as a pdf through UW Moodle course site. Review readings will be offered as a citation when pertinent.

Grading

Weekly exercises (12) – 10 pts each	120
Challenges (3) – 30 pts each	90
Online participation, effort, & peer support	30
<hr/>	
	240 total

Illness, travel, & late work: All work must be completed or submitted online by the scheduled due date. If you know of outside travel or work commitments near due dates, plan to have your work completed ahead of time, or talk with me well in advance. In the case of unexpected illness or emergency that absolutely prevents you from completing work on time, contact me or your TA ASAP. Otherwise, 20% will be subtracted from grade for each day an online lesson, lab exercise or challenge is late.

Engaged participation: We will monitor participation in the online lessons and discussions. Lab work should be completed independently but you are welcome to 'call a friend' for peer support. Also, assistance from instructors will be managed within the stated timeframes (e.g. virtual office hours & lab time).

Schedule of Topics

1. Getting spatial! Emerging & foundational tools
2. Getting specific - Landscape evaluation and conservation GIS
3. Getting complex - Modeling & adaptation strategies

Module I – Getting Spatial! Emerging and Foundational Tools

Lesson	Date	Topic
-	Jan 22	Introduction to course Lesson: get acquainted with course, software, server, & lab protocol Reading: ^P Kerski & Clark – chp 1, 2 Lab exercise: take pre-quiz of existing knowledge Review: <u>Understanding Map Projections and Coordinate Systems</u> Virtual Campus course (ESRI).
1.	Jan 27, 29	Spatial data: models & portals Reading: ^P Kerski & Clark – chp 3-5 Lab exercise 1: spatial data models and portals
2.	Feb 3, 5	Asking spatial questions; Modeling a spatial problem Reading: ^P Kerski & Clark chp 7, Model builder documentation (TBD) Lab exercise 2: geoprocessing and model builder; Review: ^R Bolstad chp 9 – Basic spatial analysis
3.	Feb 10, 12	Citizen Data; In the cloud with ArcGIS.com; Reading: ^P Kerski, chp 8-9, ^S ArcGIS.com documentation (pdf or link) Lab exercise 3: mobile & online GIS
4.	Feb 17, 19	Evaluating suitability and capability; Emerging directions in GIS Reading: ^P Kerski, chp 10; Chapter 2 (Priority Places – Asheville, NC) in GeoDesign case study book http://gis.ashevillenc.gov/mapasheville/priorityplaces/ Lab exercise 4: weighted overlay Review: ^R Kennedy chp 7

CHALLENGE 1 - 30 pts

Module II – Landscape evaluation and conservation GIS

Lesson	Date	Topic
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5. Mar 3, 5 Land use and landscape changeReading: ^P*ConsPlan'g* chp 4-5; ^S*Interpolating Surfaces* (pdf)

Lab exercise 5: assessing change

6. Mar 10, 12 Evaluation and metricsReading: ^P*Gergel* chp 7(pdf)

Lab exercise 6: Fragstats

SPRING BREAK**7. Mar 24, 26 Spatial stats in ArcGIS**Reading: ^P*Wong & Lee* 1.1-1.3; 6.6 + appendix (pdf)

Lab exercise 7: quantifying patterns

8. Mar 30, Apr 1 Selecting species; habitat assessmentReading: ^P *ConsPlan'g* chp 6-7;

Lab exercise 8: habitat assessment

**CHALLENGE 2 –30 pts****Module III –Modeling and Adaptation**

Lesson	Date	Topic
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9. Apr 14, 16 Mapping habitat cores & assessing connectivityReading: ^P *ConsPlan'g* chp 9-10; ^S*Nikolakaki* article (pdf)

Lab exercise 9: biodiversity assessment

10. Apr 21, 23 Planning for viability and optimizationReading: ^P *ConsPlan'g* chp 11-12;

Lab exercise: Reserve design; Goodall & GIS

11. Apr 28, 30 Landscape scenario modelingReading: ^P*TBD*

Lab exercise 10: 'spatial labs'

12. May 5, 7 Projecting trends and designing for adaptationReading: ^P*ConsPlan'g* chp 13-15;

Lab exercise: 'spatial labs'

CHALLENGE 3 - 30 pts

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

Course Title

Geodesign Capstone

Transcript Title (limit 30 characters)

Geodesign Capstone

Three-digit course number

634

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

No

Note the crosslisted subjects

What is the primary divisional affiliation of this course?

Arts & Humanities

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Summer

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

The Geodesign Capstone is the culmination of the Geodesign Capstone Certificate Program. Students will demonstrate skills, knowledge and application of geodesign knowledge domains by addressing Geodesign problems in society and/or the workforce.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Students must be enrolled in the Geodesign Certificate program and have completed the following courses: Intro to Geodesign (UW-Madison LA630, UW-SP Geog 430/630) Geodesign Methods (UW-Madison LA631, UW-SP Geog 631) Sustainability and Resilience in Geodesign (UW-Madison LA 671; UW-SP GEOG 471/671); Geospatial Approaches to Conservation Design and Adaptation (UW-Madison LA 633; UW-SP GEOG 633)

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Field Studies

Laboratory

Administrative Information

Chief Academic Officer

John A Harrington

Designee of chief academic officer for approval authority

Deborah A Griffin; Evelyn A Howell

If there are additional contacts, please list

Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com>, Douglas Miskowiak (Doug.Miskowiak@uwsp.edu)

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course**Beginning Term**

Summer 2015

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

Yes

Which program?

Geodesign Certificate

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

This course is the final capstone course in the Geodesign Certificate program.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

This course is the final capstone course in the Geodesign Certificate program.

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

*This is a capstone course. Students will identify a "real world" geodesign problem and work with an adviser and a client to develop design and planning proposals that address the problem. Each student will have a unique project and fulfill the requirements listed below. Each student: * must have select and have an approved 'real world' capstone project before registering for the Capstone Course * is responsible for finding their own capstone project * must include each phase/model of the Geodesign framework as the focus of their project, including the following: o Representation Model o Process Model o Evaluation Model o Change Model o Impact Model o Decision Model * is responsible for assembling a capstone committee which will consist of: o A Geodesign Program faculty member o A project supervisor/client * The Capstone Course Coordinator must meet with client/project supervisor regularly * is responsible for meeting weekly with faculty advisor and/or the Capstone Course Coordinator on progress and for guidance * Each student will electronically submit one final report document which will include all text, images, maps, and graphics organized in logically and presented in a professional manner*

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

At UW-Madison a GIS Certificate is offered by the Department of Geography. The proposed Geodesign Capstone Program, however, is different in several regards. First, the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional projects. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly, however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Geodesign Program will focus on the use of GIS and other geospatial technology to solve design problems. In a way what is taught in the GIS Certificate program can be seen as a prerequisite for the Geodesign Program. GIS is the art and science of "what is and how it came to be" whereas geodesign can be seen as the art and science of using geospatial information in the realm of "what could be." The Department of Geography has been consulted about the Geodesign Program and wrote a letter of support for a Geodesign Program Educational Innovation (EI) grant in March, 2013. The letter states that Geography does not anticipate that the Geodesign Program would compete with existing, residence programs in Cartography and GIS or duplicate the department's mission to provide core competencies in GIS. The Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

*Community & Environmental Soc (864)
Forest And Wildlife Ecology (396)
Zoology (970)
Urban And Regional Planning (944)
Civil and Environmental Engr (240)
Envir St - Gaylord Nelson Inst (360)
Geography (416)*

List the instructor name and title (list multiple if applicable)

Travis Flohr, Faculty Associate, Department of Landscape Architecture, UW-Madison Douglas Miskowiak, GIS Education Specialist, GIS Center/Department of Geography/Geology UW-SP Eugene Martin, Visiting Instructor, GIS Center/Department of Geography/Geology UW-SP Timothy Kenedy, Instructor of Geography, GIS Center/Department of Geography/Geology UW-SP

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

Travis Flohr: Travis is currently finishing his PhD at the University of Colorado Denver. He holds masters and bachelors degrees in Landscape Architecture. He has over 5 years of experience in curriculum development in Geodesign and geographic information systems (GIS). He has taught both graduate and undergraduate students. He has worked in classroom and online settings. He has several publications about geodesign and GIS in planning and design. Doug Miskowiak: Doug's education and professional and academic experience has been in the areas of land use planning and geographic information systems. He holds a BS from the Department of Landscape Architecture at UW-Madison, and an MS in Urban and Regional Planning at UW-Madison. Doug has been an instructor in online and in-class GIS and

Geodesign related courses for 13 years. He has been a GIS Education Specialist at the GIS Center - Department of Geography/Geology for the past 4 years. Doug has a long list of publications on GIS and Geodesign and has made dozens presentations concerning these topics at conference across the country. Eugene W. Martin: Eugene holds an M.A. in Geography from the University of Washington as well as a B.A. in Forest Biology from the University of Vermont. He will earn his PhD in Geography from the University of Washington. He has 17 years of curriculum development and teaching experience in GIS and Geodesign. Eugene has been teaching Geog 671: GIS and Geodesign for Sustainability and Resiliency as a visiting instructor for three years in the Department of Geography at UW-Stevens Point. Eugene has list of publications that focus on GIS and geodesign. Timothy T. Kennedy: Timothy is currently in a tenure track position with the Department of Geography/Geology at UW-Stevens Point. He holds a B.S. in Environmental Science from Carrol University and an M.Sc. in Land Use Planning from UW-Madison. Timothy is ABD and expecting to complete his PhD in Geography from UW-Madison in 2014.

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

Syllabus_634.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This is the final course in the five-course, fifteen-credit Capstone Certificate program. It tests students on their ability to integrate information from the four prerequisite course in a real-world hands-on context.

Provide an estimate of the expected enrollment

At maximum capacity 20-30 students.

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

This will be an eight week course. Students will meet weekly with an adviser and/or the program coordinator for project advising and to report progress. Student will meet regularly with a capstone client. Students are expected to work 12-15 hours/week outside of class. Students will participate weekly in an online discussion based on their individual capstone projects.

If this is a variable credit course, provide rationale

Additional comments (optional)

This course will be part of a proposed Geodesign Capstone Program. The program is an interdisciplinary initiative within the University of Wisconsin System. The initiative is being led by the Department of Landscape Architecture at UW-Madison and the Department of Geography and Geology/GIS Center at UW-Stevens Point. The State Cartographer's Office (Department of Geography, UW-Madison) is a key partner and acts as a neutral party and liaison between the two departments. The Geodesign Program will follow a "home campus model." A graphic of this model is on page 3 (Figure 1: Geodesign Certificate Program Home Campus Model) of the attached Geodesign Capstone Program proposal. There will be a total of five three-credit courses. Faculty from each program will be responsible for teaching 1 foundation course and a second advanced course. The fifth course will be a capstone experience taught by faculty from both campuses. Courses will be cross listed between the Department of Landscape Architecture at UW-Madison and the Department of Geography/Geology at UW-Stevens Point. All courses will be taught online.

Additional attachments (optional) (please read "help" before uploading an attachment)

cv-dmiskowiak_7_13.pdf

Travis_Flohr-UW_Geodesign_CV.pdf

martin_e_cv_2011_v2.pdf

Kennedy_CV_12042013.pdf

GeodesignAPC Doc_Dec12_2013_JH..pdf

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

Geodesign Capstone Project

(UW-Madison, LA 634, UW-SP Geog 634, 3 credits)

Course Overview

This capstone course is the culmination of the year-long Geodesign Certificate Program. It is designed for students to demonstrate the skills and knowledge that they have acquired in the four prerequisite courses by resolving a “real world” geodesign problem. Students will work with a mentor on projects of their own choosing as agreed upon by their mentor and the Capstone Project course coordinator.

Geodesign Capstone Course Coordinator: TBD

Required Text:

McElvaney, Shannon. Geodesign: Case Studies in Urban and Regional Planning. Esri Press, Redlands. 2012

Prerequisites:

Intro to Geodesign (UW-Madison LA630, UW-SP Geog 4/630)

Geodesign Methods (UW-Madison LA631, UW-SP Geog 631)

Sustainability and Resilience in Geodesign (UW-Madison LA 671; UWSP GEOG 4/671);

Geospatial Approaches to Conservation Design and Adaptation (UW-Madison LA 633; UWSP GEOG 633)

Course Goals and Learning Outcomes

- 1) Students will be able to articulate a design problem by identifying and analyzing the conditions, forces, and issues related to their geodesign project.
- 2) Students will be able to compile appropriate/relevant data for their selected geodesign project
- 3) Students will be able to identify and critically review tools processes and methods necessary to solve their geodesign problem.
- 4) Student will be able to successfully apply chosen processes, methods, and tools to solve their geodesign problem.

Project Requirements:

Each student

- must have an approved capstone project before registering for the Capstone Course
- is responsible for finding their own capstone project
- must select a “real world” project

- must include data collection, data analysis, geodesign evaluation models, and visual representation as the focus of their project
- is responsible for assembling a capstone committee which will consist of:
 - A Geodesign Program faculty member
 - A project supervisor/client
 - The Capstone Course Coordinator
- must meet with client/project supervisor regularly
- is responsible for meeting weekly with faculty advisor and/or the Capstone Course Coordinator on progress and for guidance
- Each student will electronically submit one final report document which will include all text, images, maps, and graphics organized in logically and presented in a professional manner

Process/Timeline:

Prior to course enrollment:

Find a capstone project and identify a project supervisor/client

Write capstone project proposal

Meet with program faculty member to evaluate/approve project

Register for the Capstone Course

Week 1 -Submit Preliminary Project Abstract

Week 2 - 3 – Meet with client and faculty advisor

Week 5 – Submit Preliminary Project Draft

Week 6 – 7 - Meet with client and faculty advisor

Week 8 - Submit completed electronic report to Learn@UW dropbox.

Obtain faculty grade/approval of final project

Report Requirements

Format: Abstract, Introduction, Methods, Results, Conclusions/Summary

Abstract

- Concise (500 word or less) project description focusing scope, methods, and conclusions

Introduction

- Problem Statement
- Project Goals
- Project Overview
- Report Organization

Methods

- Critical Analysis of data, processes/methodologies and tools as they relate to each students individual project
- Discussion of what data was collected, how, and from what sources
- Discussion of how project data is organized
- Discussion of processes and methods applied for data analysis
- Discussion of application of evaluation models

Results

- Discussion of results of analysis and evaluation
- Discussion of proposed design, planning, and/or management solutions based on results of the analysis and evaluation methods
- Graphic representation of spatial components of design, planning, and/or management solutions

Conclusions/Summary**Grading**

Week 1 Abstract – 10 points

Week 5 Project Draft – 50 points

Week 8 Final Project Report – 100

Grade Scale

Qualitative Level Achieved	Letter Grade	Percentage Range	Point Range
Brilliant; highly inspired, faultless	A	93-100	
Nearly brilliant & faultless; quite inspired	A-	90-92.99	
A level above 'strong'; special in some way	B+	87-89.99	
Strong; solid	B	83-86.99	
Basically strong; a few minor weaknesses	B-	80-82.99	
Basics present; some key elements missing; significant errors or weaknesses	C+	77-79.99	
Done but many key elements missing or errors present; consistently weak or uninspired	C	70-76.99	
Barely acceptable; major gaps and weaknesses	D	60-69.99	
Missed the point; substantially incomplete; unexcused lateness	F	< 60	

Douglas Alan Miskowiak

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Stevens Point, WI 54481
715-342-1947
dmiskowi@uwsp.edu

GIS Center
Science Building – 2001 Fourth Avenue
Stevens Point, WI 54481
715-346-4789

Current Title: GIS Education Specialist, GIS Center – Department of
Geography/Geology, University of Wisconsin, Stevens Point

Education

Master of Science, Department of Urban and Regional Planning, University of Wisconsin, Madison,
December 2001.

Bachelor of Science, Department of Landscape Architecture, University of Wisconsin, Madison, May
1998.

Associate Degree, University of Wisconsin, Marathon Center, May 1995.

Teaching Experience

Technical Trainer, UWSP GIS Center Training Program. GIS Center, University of Wisconsin, Stevens
Point, 2011-Present.

Instructor, Geography 279: Fundamentals of Geographic Information Systems. 2009 - Present.
University of Wisconsin-Stevens Point.

Instructor, Geography 486/686: GIS and GPS Applications for Forestry Management. 2012 - Present.
University of Wisconsin-Stevens Point.

Instructor, Geography 473/673: GIS Applications for Working Lands and Operations. 2011 - Present.
University of Wisconsin-Stevens Point.

Technical Trainer, Esri Authorized Instructor and GIS Instructor. GIS Center, University of Wisconsin,
Stevens Point, 2011-2012.

Instructor, Geography 476/676: Introduction to Geographic Information Systems. 2009. University of
Wisconsin-Stevens Point.

Technical Trainer, Plan Commission Workshops and support of College Land Use Faculty, Center for
Land Use Education, University of Wisconsin, Stevens Point, 2002-Current.

Technical Trainer, Geographical Information Systems for Land Planning and Management, Land Information and Computer Graphics Facility, University of Wisconsin, Madison. 1999-2001.

Teaching Assistant, Landscape Inventory and Evaluation Methods, Department of Landscape Architecture, University of Wisconsin, Madison. Fall 2000.

Professional Experience

GIS Education Specialist, GIS Center, Department of Geography/Geology, University of Wisconsin – Stevens Point. 2009 – Current.

GIS/Land Use Specialist, Center for Land Use Education, University of Wisconsin-Stevens Point, 2001 - 2009.

Research Assistant, National Consortium for Rural Geospatial Innovations in America, University of Wisconsin, Madison, 2001.

Project Assistant, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 2000.

Associate Outreach Specialist, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 1998, 1999.

Student Hourly, Land Information and Computer Graphics Facility, University of Wisconsin, Madison, 1997, 1998.

Land Survey Assistant, Remedial Engineering, Wausau, Wisconsin, June 1994 – August 1994.

Professional Service

Member: Wisconsin Land Information Association, 1997 - current.

Member: American Planning Association, 2000-2001

Member: Urban and Regional Information Systems Association, 1999-2001

Board of Directors: Wisconsin Land Information Association, 2007 - 2010.

Papers and Publications

Peer Reviewed Journals

Onitilo AA, Engel JM, Liang H, Stankowski RV, Miskowiak DA, Broton M, Doi SA. Mammography utilization: patient characteristics and breast cancer stage at diagnosis. Am J Roentgenol. In press.

Onitilo AA, Liang H, Stankowski RV, Engel JM, Broton M, Doi SA, Miskowiak DA. Geographical and season barriers to mammography services and breast cancer stage at diagnosis. Submitted to J Rural Health.

Books

Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.). (2011). *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Niemann, Bernard J. (2011). Chapter 11 – Defining Planning Questions and Functionality. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Ventura, Stephen J. (2011). Chapter 15 – Planning Analyst Module 2: Analyze – Putting Spatial Data into Action. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Ventura, Stephen J. Niemann, Bernard J. (2011). Chapter 18 – Lessons Learned: Did Better Tools Yield Better Results? In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Miskowiak, Douglas A. Ventura, Stephen J. Niemann, Bernard J. (2011). Chapter 19 – Through the Gates: Innovation and Adoption in Two Counties. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Niemann, Bernard J. Miskowiak, Douglas A. et al. (2011). Chapter 20 – Imagining the Future. In Niemann, Bernard J. Moyer, D. David. Ventura, Stephen J. Chenoweth, Richard E. Miskowiak, Douglas A. (Eds.), *Citizen Planners: Shaping Communities with Spatial Tools*. ESRI Press. Redlands, CA.

Reports

Miskowiak, Douglas. 2011. Citizen Assessment of Critical Habitats and Priority Shorelines - 2010: Final Report. GIS Center, University of Wisconsin – Stevens Point. October, 2011.

Miskowiak, Douglas. 2010. Moose Lake Legacy Initiative: Final Report. GIS Center, University of Wisconsin – Stevens Point. April 2010.

Miskowiak, Douglas. 2009. Targeting Working Lands and Operations Pilot Project. Findings and Recommendations Report for La Crosse County, Wisconsin. GIS Center, University of Wisconsin – Stevens Point. May 2009.

Miskowiak, Douglas. 2009. Targeting Working Lands and Operations Pilot Project: Findings and Recommendations Report for Calumet County, Wisconsin. GIS Center, University of Wisconsin – Stevens Point. January 2009.

Miskowiak, Douglas. 2007. GIS Supports Community-Based Planning in Waupaca County, Wisconsin. Government Matters (Fall 2007): 12-13.

Phillips, Victor. Miskowiak, Douglas. Stoll, Linda (Eds.). 2007. Planning for Land Use and Healthy Watersheds: Proceedings of an International Conference. Global Environmental Management Education Center, Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. 2006. Citizen's Guide to Future Land Use Mapping. Center for Land Use Education, University of Wisconsin – Stevens Point, August 2006.

Miskowiak, Douglas. 2004. Crafting an Effective Plan for Public Participation. Center for Land Use Education, University of Wisconsin – Stevens Point, November 2004.

Miskowiak, Douglas. 2003. Identifying and Quantifying Development Constraints for the Townships of Birchwood, Long Lake, and Madge. Center for Land Use Education, University of Wisconsin – Stevens Point, October 2003.

Miskowiak, Douglas. 2003. Identifying and Quantifying Development Potential for the Townships of Birchwood, Long Lake, and Madge. Center for Land Use Education, University of Wisconsin – Stevens Point, October 2003.

Miskowiak, Douglas. Tang, Chin-Chun. 2004. Recruiting and Retaining Qualified Plan Commissioners. Center for Land Use Education, University of Wisconsin – Stevens Point, September 2004.

Miskowiak, Douglas. Niemann, Bernard J. Sutphin, Todd L. Ventura, Stephen. Heinzl, Math. 2001. Shaping the Citizen Planner. Citizens Look to Information Technology to Address Land Use Policy Questions. National Consortium for Rural Geospatial Innovations Great Lakes, University of Wisconsin – Madison, October 2001.

Miskowiak, Douglas. Niemann, Bernard J. Ventura, Stephen. Heinzl, Math. 2000. Farmland Preservation and GIS: A Model for Deriving Farmland Priority Zones. Land Information and Computer Graphics Facility, University of Wisconsin – Madison, 2000.

Niemann, Bernard J. Heinzl, Math. Ventura, Stephen. Sutphin, Todd. Miskowiak, Douglas. 1999. Mapping Growth Management Factors: A Practical Guide for Land Use Planning. Land Information and Computer Graphics Facility, University of Wisconsin – Madison, 1999.

Niemann, Bernard J. Heinzl, Math. Ventura, Stephen. Sutphin, Todd. Miskowiak, Douglas. 1998. Environmental Corridors: Land Use Planning Guide. Land Information and Computer Graphics Facility, University of Wisconsin – Madison, 1998.

Newsletter Articles

Miskowiak, Douglas. 2007. GIS Supports Community-Based Planning in Waupaca County, Wisconsin. ESRI Government Matters. Fall 2007.

Miskowiak, Douglas. 2006. Planning on the Cutting Edge Requires Fine Honing: What-If in Waupaca County. The Land Use Tracker. Vol. 6, no. 1, Summer.

Miskowiak, Douglas. 2005. Web Mapping for Comprehensive Planning: Now Serving Number. The Land Use Tracker. Vol. 5, No. 1, Summer.

Miskowiak, Douglas. Tang, Chin-Chun. 2005. Fostering Outreach Education and Public Involvement with GIS: A Case Study from Wisconsin's Northwoods. Participation Quarterly. International Association for Public Participation. May, 2005.

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Miskowiak, Douglas. 2003. Meaningful to Citizens – Functional for Planning: Using Public Participation Tools to Accomplish Planning Tasks. The Land Use Tracker. Vol.3, No.3, Winter.

Fact Sheets

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Conservation Design. Center for Land Use Education, University of Wisconsin – Stevens Point.

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Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Density Bonus. Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Overlay Zoning. Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Purchase of Development Rights. Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Planned Unit Development. Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Transfer of Development Rights. Center for Land Use Education, University of Wisconsin – Stevens Point.

Miskowiak, Douglas. Stoll, Linda. 2006. Planning Implementation Tools: Traditional Neighborhood Design. Center for Land Use Education, University of Wisconsin – Stevens Point.

Conference Presentations

Miskowiak, Douglas. Manone, Mark. Wilson, John P. Foster Kelleann, Geotz-Phillips, Claudia. 2013. Explore the Diversity of Opportunities in Geodesign Education. Directions Magazine Webinar sponsored by ESRI.

Miskowiak, Douglas. Hadley, Douglas. 2013. Post-baccalaureate Geodesign Capstone Certificate Program. UW-Madison Geospatial Summit. Madison, WI.

Onitilo, Adedayo. Miskowiak, Douglas. Rice, Keith. 2013. Patient Characteristics Associated with the Use of Mammography Services. Conference on the Small City. Stevens Point, WI.

Miskowiak, Douglas. 2013. GIS and GPS Applications for Forestry. Annual Meeting of Cooperating Foresters. Stevens Point, WI.

Onitilo, Adedayo. Miskowiak, Douglas. 2013. Patient Characteristics Associated with the Use of Mammography Services. Wisconsin Land Information Association Annual Conference. Lake Geneva, WI.

Miskowiak, Douglas. Niemann, Bernard. 2012. Empowering Citizenship with GeoDesign. ESRI Annual User Conference. San Diego, CA.

Miskowiak, Douglas. 2012. Geodesign for Farmland Preservation. ESRI Annual User Conference. San Diego, CA.

Miskowiak, Douglas. Thompson, Wade. 2012. Using GIS and Geodesign for Farmland Preservation. American Planning Association Webinar.

Miskowiak, Douglas. 2011. Citizen Planners: Shaping Communities with Spatial Tools. International Workshop: New Practices of Participative Planning. University of Valencia. Valencia, Spain.

Miskowiak, Douglas. Niemann, Bernard. Czeskleba, Bill. 2011. Lake Conservation: Citizens Using Modern Mapping Tools. Northwest Wisconsin Lakes Forum. Minong, WI.

Miskowiak, Douglas. 2011. Citizen Planners: Shaping Communities with Spatial Tools. Wisconsin Land Information Association Annual Conference. Madison, WI.

Miskowiak, Douglas. 2011. Applied GIS for Managing Wisconsin's Working Lands. Wisconsin Land Information Association Annual Conference. Madison, WI.

Miskowiak, Douglas. 2011. Citizen Contributions to Land Conservation. Gathering Waters Conservancy Annual Retreat. GreenBay, WI.

Miskowiak, Douglas. 2010. Targeting Working Lands and Operations. Wisconsin County Code Administrators Annual Meeting. Neenah, WI.

Miskowiak, Douglas. 2009. Airport GIS: Applications for Airport Management. Airport Operations and Land Use Seminar. Stevens Point, WI.

Miskowiak, Douglas. 2009. Citizen Contributions to Land Conservation: Moose Lake Legacy Initiative. ESRI International Annual Users Conference. San Diego, CA.

Miskowiak, Douglas. 2009. Engaging a Lake Community with GIS: Moose Lake Legacy Initiative. Wisconsin Land Information Association Annual Conference. Wisconsin Dells, WI.

Miskowiak, Douglas. 2009. Targeting Working Lands and Operations: Lessons Learned using GIS and the Land Evaluation and Site Assessment. Wisconsin Land Information Association Annual Conference. Wisconsin Dells, WI.

Miskowiak, Douglas. 2009. Targeting Working Lands and Operations using GIS and LESA. Glacial Lakes Conservancy. Manitowoc, WI.

Miskowiak, Douglas. Felton, Kelly. 2008. The Value of GIS – Geography is to Place, What History is to Time. Wisconsin Counties Association. Wisconsin Dells, WI.

Miskowiak, Douglas. Niemann, Bernard J. 2008. Engaging a Lake Community with GIS: Mapping Shoreland Resources. 28th Annual ESRI International Users Conference. San Diego, CA.

Miskowiak, Douglas. Niemann, Bernard J. 2008. Engaging a Lake Community with GIS: Moose Lake Legacy Initiative. 30th Annual Wisconsin Lakes Convention. Green Bay, WI.

Miskowiak, Douglas. 2008. Targeting Working Lands and Operations: Applying LESA and GIS. Wisconsin Towns Association Regional Meeting. Town of Harrison, Calumet County, WI.

Miskowiak, Douglas. 2007. 3-D Visualization Techniques using ESRI ArcScene. Wisconsin American Planning Association Annual Conference. Milwaukee, WI.

Miskowiak, Douglas. 2007. Mapping High Priority Working Lands using GIS. Growing Wisconsin: A Workshop on How to Sustain Our Working Lands. Kimberly, Menomonie, Oconomowoc, WI.

Miskowiak, Douglas. 2006. Improving Land Planning Methodologies: A Vision from the Wisconsin Experience. Keynote Address. International Planning for Land Use and Healthy Watersheds. Racine, WI.

Miskowiak, Douglas. 2006. Planning on the Cutting Edge Requires Fine Honing: PSS in Waupaca County. National Association of County Officials. Chicago, IL.

Miskowiak, Douglas. 2006. Planning on the Cutting Edge Requires Fine Honing: PSS in Waupaca County. Wisconsin Land Information Association Annual Conference. Wisconsin Dells, WI.

Miskowiak, Douglas. 2005. What is GIS? WISC LINC. Clearinghouses and Portals. Web Mapping Services. Planning Support Systems. Computer Tools for Comprehensive Planning: Wisconsin Department of Natural Resources Workshops. Stevens Point, WI.

Miskowiak, Douglas. 2004. Planning Support System for Citizen-Based Planning and Decision-Making. 3rd Annual Public Participation GIS Conference. Madison, WI.

Miskowiak, Douglas. 2004. Developing an Effective Plan for Public Participation. Wisconsin Department of Administration Comprehensive Planning Workshops. Madison, WI.

Miskowiak, Douglas. 2002. Technology and Comprehensive Land Use Planning. Soil and Water Conservation Society Conference. Indianapolis, IN.

Miskowiak, Douglas. 2001. Enhancing Public Access to Land Information. Wisconsin Land Information Association Annual Conference. LaCrosse, WI.

Miskowiak, Douglas. 2001. Place-Based and Performance-Based Planning with Planning Analyst. Tools for Community Design and Decision Making Conference. Denver, CO.

Niemann, Bernard J. Chenoweth, Richard. McClintock, Tom. Miskowiak, Douglas. 2001. Technology and the Comprehensive Plan. American Planning Association Annual Conference. New Orleans, LA.

Workshops

Miskowiak, Douglas. Burns, Kevin. 2012. GIS and GPS Applications in Forestry Management. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. 2011. Gathering Waters Conservancy GIS Fundamentals Training. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. 2011. Esri Authorized Training: Building Geodatabases. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. 2011. Esri Authorized Training: ArcGIS Desktop I: Getting Started with ArcGIS. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. Galloy, Jon. Broton, Michael. 2010. Mapping Your Passion. Science, Technology, Engineering, Mathematics Career Day. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. Neeb, Corrina. 2009. Exploring Your World with ArcExplorer. Science, Technology, Engineering, Mathematics Career Day. University of Wisconsin-Stevens Point.

Miskowiak, Douglas. Neeb, Corinna. 2009. Examining Resources with ArcExplorer. Lac Courte Oreilles Ojibwe Community College. Hayward, WI.

Miskowiak, Douglas. McClintock, Thomas. 2009. Targeting Working Lands and Operations. Applying LESA and GIS. Madison, WI.

Miskowiak, Douglas. McClintock, Thomas. 2009. Targeting Working Lands and Operations. Applying LESA and GIS. Wisconsin Land Information Association Annual Conference. Wisconsin Dells, WI.

Miskowiak, Douglas. Neeb, Corinna. 2009. Save the Super Heroes, Save the World. University of Wisconsin – Stevens Point, Open House.

Heinzel, Math. McClintock, Tom. Hansen, Jennifer. Miskowiak, Douglas. Allenstein, Steve. 2002. Public Participation Tools for Comprehensive Planning. Wisconsin Land Information Association Annual Conference. Green Bay, WI.

McClintock, Tom. Heinzel, Math. Miskowiak, Douglas. Hansen, Jennifer. 2001. Land Use Technologies for Smart Growth Planning. Wisconsin Land Information Association Annual Conference. La Crosse, WI.

Heinzel, Math. McClintock, Tom. Miskowiak, Douglas. Sutphin, Todd. 2000. Land Use Planning Using GIS. Wisconsin Land Information Association Annual Conference. Lake Geneva, WI.

Funded Grants

UW-SeaGrant. 2010. “GIS-Based Analysis of Sustainable Domestic Aquaculture Development in Wisconsin.” \$200,031. Submitted with Dr. Chris Hartleb, Dr. Keith Rice, and Sarah Kaatz.

COLS Undergraduate Education Initiative. 2010. “New Protocol for Receiving, Archiving, and Distributing GIS Data.” \$1,985.

Marshfield Clinic Foundation. 2010. “Patient characteristics associated with use of mammography services and stage of breast cancer at initial diagnosis.” \$13,475. Submitted with Dr. Adedayo Onitilo from Marshfield Clinic.

Wisconsin Lake Planning Grant. Wisconsin Department of Natural Resources. 2010. “Grindstone Lake Management and Planning Grant.” \$9,550. Submitted by the Grindstone Lake Association.

COLS Undergraduate Education Initiative. 2009. “GIS for Neo-geographers.” \$1,800.

Wisconsin Lake Planning Grant. Wisconsin Department of Natural Resources. 2008. “Planning for the Future of Portage County Lakes.” Submitted with Linda Stoll, Nancy Turyk, J. Kingsley, Christine Mechenich, Lynn Markham – UW-Stevens Point. \$100,000.

Wisconsin Lake Planning Grant. Wisconsin Department of Natural Resources. 2008. “Moose Lake Legacy Initiative.” \$10,000. Submitted on behalf of the Couderay Waters Regional Land Trust.

National Consortium for Rural Geospatial Innovations. 2007. "Moose Lake Island Legacy Initiative."

Program Innovation Fund. UW-Extension. 2007. "Creating Livable Communities as an Economic Development Strategy" \$38,970. Submitted with Linda Stoll, Doug Miskowiak – UWSP; Tracy Mofle-Cooperative Extension, UW- Barron County; Laura Lee-UW-Marshfield/Wood County; Will Andersen-Iron County, Community Resource Development; Julie Hellweg – UWSP Continuing Education.

United States Department of Agriculture, Cooperative State Research, Education and Extension Service, National Research Initiative Competitive Grants Program. "Factors influencing land parcelization in amenity rich rural areas and the potential consequences of planning and policy variables," Submitted with CLUE staff for 2005-2009 funding, \$380,000.

University of Wisconsin Consortium for Extension and Research in Agriculture and Natural Resources. 2006. "Targeting Working Lands and Operations to Protect Wisconsin Agriculture." Submitted with LICGF staff for 2007-2008 funding, \$49,789.

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Summary of Qualifications

- **Six years** professional experience
- Over **5 years** of curriculum development in Geodesign, geographic information systems (GIS), landscape architecture, environmental design, and urban and regional planning.
- **Extensive computer training:** ESRI's ArcGIS Desktop, Adobe Software, AutoCAD, open-source GIS (Grass and QGIS), web GIS (Google Earth, Google Maps, PostGIS/PostGRES), course management software, SPSS, Microsoft Office, SketchUP, and e-on software VUE.

Education

Ph.D. The University of Colorado Denver Fall 2011 - to present	Doctoral Program in the College of Architecture and Planning with an emphasis in Design and Planning, Sustainable and Healthy Environments. (Advisor: Brian Muller, Ph.D.)
MSLA The Pennsylvania State University 2008 - December 2011	Master of Science in Landscape Architecture - Thesis: <i>Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning.</i> (Advisor: Timothy Murtha, Jr, Ph.D.)
Professional BLA The Pennsylvania State University 1997 - 2002	Professional Bachelors Degree of Landscape Architecture.

Teaching Experience

Full-Responsibility Instructor

LDAR 6686 The University of Colorado Denver Fall 2013	<i>Introduction to GIS (Graduate)</i> Responsibilities: Development of new course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, workshops, video tutorials, and grading).
MURP The University of Colorado Boulder Summer 2013 – Fall 2013	<i>Planning Workshop (Graduate)</i> Responsibilities: Created assignments, scripted, developed, and delivered tutorial videos related to planning and design methodologies for an e-learning hybridization of planning studio instruction for the following software: ESRI ArcGIS Desktop, Adobe Photoshop, Adobe Illustrator, Adobe InDesign, and Trimble SketchUP
ENVD 3152 The University of Colorado Boulder Summer 2012	<i>GIS (Undergraduate)</i> Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.
ENVD 4352 The University of Colorado Boulder Spring 2012	<i>Geodesign and the Web (Undergraduate)</i> Responsibilities: Co-developed a new course including: curriculum, syllabus, assignments, grading rubrics, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips and site visits.
LArch 151 The Pennsylvania State University Fall 2010	<i>Introduction to Design Visualization – freehand and perspective drawing (Undergraduate)</i> Responsibilities: Developed a course including: curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures, and grading).

Accreditation
Accreditation Assistant

The Pennsylvania State University
Fall 2010

The Pennsylvania State University Landscape Architecture Self Evaluation Report for Bachelor Degree Accreditation
Responsibilities: Compiled and produced the accreditation report and exhibit design.

Teaching Assistant/Instructor (facilitated curriculum development and delivery, but was not instructor of record).

ENVD 4363

The University of Colorado Boulder
Maymester 2013

Open Space Systems Studio (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, course delivery (i.e. lectures, workshops, video tutorials, and grading), and coordinated field trips.

ENVD 2130

The University of Colorado Boulder
Spring 2013

Landscape Design Studio (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. GIS lectures, workshops, and video tutorials).

LDAR 5502

The University of Colorado Denver
Spring 2013

Landscape Design Studio II (Undergraduate)

Responsibilities: Developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery for GIS instruction (i.e. GIS lectures, workshops, video tutorials, and grading).

ENVD 3124

The University of Colorado Boulder
Fall 2012

Issues in Planning History (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. lectures and grading).

ENVD 2120

The University of Colorado Boulder
Fall 2012

Environmental Urban Design Lab/Studio: Sustainable Design (Undergraduate)

Responsibilities: Co-developed curriculum, syllabus, assignments, grading rubrics, and course delivery (i.e. GIS lectures).

LArch 332

The Pennsylvania State University
Spring 2010

Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)

Responsibilities: Filled in for a professor on emergency leave. : Co-developed curriculum, syllabus, assignments, grading rubrics, desk critiques, and course delivery (i.e. lectures and grading).

Teaching Assistant**ARCH 3114**

The University of Colorado Boulder
Fall 2013

Architectural History (Undergraduate)

Responsibilities: Grading, office hours, and managing course management software.

ENVD 2120

The University of Colorado Boulder
Fall 2010

Environmental Urban Design Lab/Studio – Sustainable Design (Undergraduate)

Responsibilities: Developed and delivered GIS tutorial demonstrations, office hours, and compiled GIS data.

LArch 321

The Pennsylvania State University
Fall 2009

Regional Site Planning and Design Seminar (Undergraduate)

Responsibilities: Developed courses reading assignments, reading list, grading rubrics, and grading student assignments.

LArch 311 The Pennsylvania State University Fall 2009	<i>Regional Site Planning and Design Studio (Undergraduate)</i> Responsibilities: Kept student attendance records, assisted in grading student assignments, provided GIS technical support and lectures.
LArch 341 The Pennsylvania State University Fall 2008	<i>Plants, Places, People an ecosystem approach to design, planning, and management of the land (Undergraduate)</i> Responsibilities: Kept student attendance records and assisted in grading student assignments.

Research Experience

Research Assistant The University of Colorado August 2011 - to present	<i>"Phenology and Heat Island Effect of Green Infrastructure in Cities: A window into ecosystem services in urban environments"</i> Responsibilities: Co-developing research design, literature review, GIS mapping, remote sensing, and spatial/statistical analyses.
Research Assistant The University of Colorado Denver May 2013 – to present	Responsibilities: Compiled and created wildfire assessment of historic vegetation maps and spatial analysis for Rocky Mountain National Park.
Research - Co-Principal Investigator The University of Colorado Boulder May 2013 - to present	<i>Visitation and Use on Boulder County's Regional Trails</i> Responsibilities: Co-developed research proposal, grant application, observation instrument, collected field observations, compiled and computed statistical analyses, and written report.
Intern/Research Manager The Access Fund/Boulder Climbing Community May 2012 - September 2013	<i>Boulder Canyon User Study</i> Responsibilities: Developed a survey and user/car count instrument, provided statistical analyses, and a report for understanding climber use of Boulder Canyon, Boulder, Colorado.
Research Assistant The University of Colorado August 2011 - August 2012	<i>City of Boulder/University of Colorado Sustainability Indicators Project</i> Responsibilities: Co-developed and implemented research design, literature review, GIS mapping, content analysis, spatial analysis, city-wide sustainability metrics, survey instrument, interviews, interview coding, and document analysis.
Research Assistant The University of Colorado Boulder Spring 2012	<i>GIS Assistant</i> Responsibilities: Developed GIS resources within the Environmental Design (ENVD) Program including, data acquisition, cleaning, editing, and GIS technical support.
Research Assistant The University of Colorado Boulder Spring 2012	<i>Urban Futures Lab Assistant</i> Responsibilities: Developed a new website and marketing information for the Urban Futures Lab (formerly the Land Use Futures Lab) http://urbanfutureslab.colorado.edu .
Research Assistant The Pennsylvania State University Summer 2010	<i>The Art of Envisioning Landscape (Umění Předvídání Terénu)</i> Responsibilities: Co-authored a report including production, editing, compilation, and art exhibit design, based on a service learning trip to Czech Republic.
Research Assistant The Pennsylvania State University Summer 2010	<i>2011 Exhibition: Re-collections and Re-visions</i> Responsibilities: Printed and compiled student's art for an art exhibit in Praha, Czech Republic.

Research Assistant

The Pennsylvania State University
Fall 2009 - Spring 2010

geoSPATIAL DESIGN: GIS, RELATIONAL DATABASES, AND DEDICATED COMPUTING.

Responsibilities: Provided GIS support for various studios' within the School of Architecture and Landscape Architecture, as well as numerous faculty research projects. Also, provided guidance in developing a hardware and software list for the proposal.

Research Assistant

The Pennsylvania State University
Fall 2008 - Spring 2009

Integrating Information: Bridging the Gap Between Geographic Information Systems and Building Information Modeling

Responsibilities: Provided project management and methodology documentation support.

Professional Experience**Layout Editor**

The Pennsylvania State University
May 2011 - to present

Wetland Science and Practice Journal

Responsibilities: Responsible for compiling quarterly issues and designing the journal layout.

Consultant

Computer Terrain Mapping
July 2013 - September 2013

Pea Ridge National Military Park

Responsibilities: Provided ArcGIS technical assistance in creating data conversion, database construction, and mapping symbology.

Project Manager

Frederick Seibert & Associates, Inc.
Jan. 2003 - Aug. 2008

Responsibilities: Managed all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design. Total constructed projects exceed \$500,000,000 dollars in construction costs.

Designer

Frederick Seibert & Associates, Inc.
May 2002 - Jan 2003

Responsibilities: Designed projects through all aspects of the design process from conceptual design through construction administration — for projects ranging from regional planning to residential garden design.

Refereed Book Chapters

Muller, Brian, **Travis Flohr** and Mehdi Heris. 2013.

Urban Morphology and Heat: Exploring the Relationships. In Francesco Moccia (ed.)

Sustainable Stormwater Management Infrastructures: Principles and Guidelines. CLEAN Press. (In Press)

Professional Reports

Flohr, Travis and Stacey Schulte. *Visitation and Use on Boulder County's Regional Trails* (Boulder County, CO: Boulder County Parks and Open Space, 2013).

Flohr, Travis. *Boulder Canyon User Study* (Boulder, CO: Access Fund, 2013).

Non-Refereed Publications

Flohr, Travis. "Communicating Design." *Landscape Architecture Foundation Blog*. Posted January 10, 2011. <http://lafoundation.org/news-events/blog/2011/01/10/osp-travis-flohr/>. (Invited blog post).

Flohr, Travis. "A Landscape Architect's Review of Building Information Modeling Technology." *Landscape Journal: design, planning, and management of the land* 30.1 (2011): 169-170.

Flohr, Travis, Steve Zoretich, and Andy Kalback. "Project Washington County Hospital" in *Celebrating 100 Years of Landscape Architecture Excellence at Penn State*. Edited by Mike Shamalla, Tim Padalino, and Adam McGuire, 62. Penn State Department of Landscape Architecture, 2007.

Publications Under Review

Flohr, Travis, Alessandro Rigolon, and Samuel Gallaher. "An Investigation into the Accessibility of Bicycle Infrastructure: A Mixed Methods Study" Submitted October 2013 to *The Journal of Mixed Methods Research*.

Rigolon, Alessandro and **Travis Flohr**. "Exploring children and youth's accessibility to urban green spaces: A GIS study measuring access opportunities for formal and informal play." Submitted October 04, 2013 to the *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Publications Under Preparation for Submission

Muller, Brian, Mehdi Heris, and **Travis Flohr**. "Urban Morphology and Heat: Exploring the relationships." for Summer/Fall 2014 submission to *Journal of the American Planning Association*.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr**, and Mehdi Heris. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments" for Summer/Fall 2014 submission, journal to be determined.

Rigolon, Alessandro, **Travis Flohr**, and Nancy Leech. Tentative title, "Mixed Research in Design and Planning: A Mixed Research Investigation of Trends in the Literature." for Summer/Fall 2014 submission to the *Journal of the American Planning Association*.

Flohr, Travis. "The Equity of Green Infrastructure within Cities: An exploration of Denver, Colorado's urban forest." for Spring 2014 submission to the *Landscape Journal: design, planning, and management of the land*.

Rigolon, Alessandro and **Travis Flohr**. "Access to Parks for Youth as an Environmental Justice Issue: Access Inequalities and Possible Solutions." for January submission to *Buildings*. An invited special issue publication.

Flohr, Travis, Timothy Murtha, Jr, and Michael Hinke. "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." for Fall/Winter 2013 submission to *The Journal of Urbanism: International Research on Placemaking and Urban Sustainability*.

Flohr, Travis. "GIS and the iPad." for Fall 2013 submission to the *Landscape Journal: design, planning, and management of the land*.

Refereed Presentations

Rigolon, Alessandro and **Travis Flohr**. "Exploring Children and Youth's Accessibility to Urban Green Spaces: A GIS Study Measuring Access Opportunities for Formal and Informal Play." Paper presented at the *2013 Joint AESOP/ACSP Congress*, July 15-19, 2013, Dublin, Ireland.

Muller, Brian, Mehdi Heris, and **Travis Flohr**. "Urban Morphology and Heat: Exploring the relationships." Paper presented at the 2012 *The Association of Collegiate Schools of Planning*, November 1-4, 2012, Cincinnati, Ohio.

Muller, Brian, **Travis Flohr**, and Mehdi Heris. "Heat and city design: reassessing the relationship between urban heat island effects and built morphology." Paper presented at the 2012 *Association of European Schools of Planning*, July 11-15, 2012, Ankara Turkey.

Wessman, Carol, Brian Muller, Brian Buma, **Travis Flohr**, Mehdi Heris, and Mahda Mohammadbagher. "Phenology of green infrastructure in cities: A window into ecosystem services in urban environments." Paper presented at the 2012 *Ecological Society of America*, August 5-10, 2012, Portland Oregon.

Muller, Brian, Mehdi Heris, **Travis Flohr**, Saharnaz Mirzazad, Mahda Mohammadbagher, Daryoosh Ardalan, and Sam Assefa. "Measuring Sustainable Urban Form: Developing metric and indicators for the City of Boulder, CO." Paper presented at the *52nd Annual Association of Collegiate Schools of Planning Conference: ENVISION*, October 13-16, 2011, The University of Utah.

Flohr, Travis, Timothy Joice, and Ceci Rusnak. (2010). "Encountering Czech Agricultural History in a Community Engagement Studio." Paper presented at the 2010 *Agricultural History Society Conference*, June 10-12, Winter Park, Florida.

Flohr, Travis and Timothy Murtha, Jr. (2010). "Participatory Planning: A look at website content and interactivity to maximize educational potential." Paper presented at the 2009-2010 *Council of Educators in Landscape Architecture Conference*, May 12-14, Maastricht, Netherlands.

Invited Guest Lectures

Rigolon, Alessandro and **Travis Flohr**. (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The City of Boulder Parks and Recreation Department, Boulder, CO.

Flohr, Travis and Stacey Schulte. (June 7, 2013). Trail and Recreation Use. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis and Alessandro Rigolon. (June 7, 2013). Access to Green Spaces for Children. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (June 7, 2013). Habitat Fragmentation and Subdivisions. *Sustainability Indicators: The City of Boulder-Environmental Design Program Partnership*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (April 04, 2013). GIS and Sustainable Development. *Sustainable Community Development II*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis (November, 15, 2012). Environmental Impact Assessment: A case study using the Maryland Forest Conservation Ordinance. *Environmental Impact Assessment*. Lecture conducted from The University of Colorado Boulder, Boulder, CO.

Flohr, Travis. (November 14, 2012). Evaluating Design and Policies: Spatially understanding complex systems. *Introduction to GIS*. Lecture conducted from The University of Colorado Denver, Denver, CO.

Posters

Gallaher, Samuel, Alessandro Rigolon, **Travis Flohr**, and Pawinee Chuayprakong. (2013). "Bike Share Equity and Efficiency: A Mixed Methods Approach." Poster presented at the *16th Annual Research and Creative Activities Symposium*. University of Colorado, Denver, April 19, 2013.

Buma, Brian, Brian Muller, Carol Wessman, **Travis Flohr**, Mehdi Heris, and Mahda Mohammadbagher. (2012). "Assessing the Benefits of Green Infrastructure: The Dynamics of Landscape Decision, Built Morphology, and Ecosystem Services." Poster presented at the *2012 United States Regional Association of the International Association for Landscape Ecology: Informing Decisions in a Changing World Annual Symposium*. Newport, Rhode Island, April 8-12, 2012.

Buma, Brian, **Travis Flohr**, Mehdi Heris, Mahda Mohammadbagher, Daryoosh Ardalan, Brian Muller, and Carol Wessman. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the *2012 Front Range Student Ecology Symposium*. Colorado State University, Fort Collins, Colorado, February 21-22, 2012.

Wessman, Carol, Brian Muller, Brian Buma, Mehdi Herris, **Travis Flohr**, Mahda Mohammadbagher, and Daryoosh Ardalan. (2012). "Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments." Poster presented at the Spring 2012 *Cooperative Institute for Research in Environmental Sciences: Innovative Research Program Poster Session*. University of Colorado Boulder, Boulder, Colorado.

Flohr, Travis and Timothy Murtha. (2010). "Communicating Future Scenarios: Developing an interactive, participatory internet-based tool for ecological planning." Poster presented at the 2010 *Penn State Graduate Exhibition*, March 28, 2010, University Park, Pennsylvania.

Exhibitions

Flohr, Travis (2011). "LAYERS (Vrstvy)." Exhibited in *2011 Exhibition: Re-collections and Re-visions*. Curated by Cecilia Rusnak and Ann Tarantino. Vyšehrad Gallery, Prague, Czech Republic.

Grants and Contracts

Flohr, Travis and Stacey Schulte. (2013). *Visitation and Use on Boulder County's Regional Trails*. Small Grant Proposal to Boulder County Parks and Open Space. Boulder County, Colorado. (\$9,000).

Hinke, Michael, **Travis Flohr**, and Nader Afzalan. (2013). *Software Training for Designers and Planners – Department of Planning and Design, University of Colorado Denver Fall 2013*. Department of Planning and Design, College of Architecture and Planning University of Colorado, Denver. (\$6,000)

Beck, Jody. (2013). *Inventory of Urban Agricultural Potential for the Denver Metropolitan Area*. Center for Faculty Development University of Colorado, Denver. (\$10,000 - not funded, role of research assistant).

Derr, Victoria, John Lanterman, and **Travis Flohr**. (2013). *Sustainable and Productive Landscapes: Exploring the Potential for Learning Laboratories on the CU Campus and Boulder Community*. University of Colorado, Boulder SEED Grant Program University of Colorado, Boulder. (\$47,650 - not funded).

Flohr, Travis. (2012). *Fall 2013 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received two excellent and one very good review).

Flohr, Travis. (2011). *Fall 2012 EPA Science to Achieve Results (STAR) Fellows*. Environmental Protection Agency. (\$84,000 - not funded, received one excellent and two very good reviews).

Service

University
GIS and Technology in Design and Planning Certificate
University of Colorado Denver
Advisor

Advised the Department of Planning and Design on GIS Certificate coursework and curriculum development.

University
The Master Gardener Program
The Pennsylvania State University
Lecturer

Instructed the "Landscape Design" portion of Penn State's Master Gardener Program.

Academy
2011 CELA Conference Publication
Peer Reviewer

Peer Reviewer for the 2011 Council of Educators in Landscape Architecture (CELA) Conference, *urban nature*, proceedings publication.

Profession <i>Frederick Seibert & Associates, Inc.</i> High School Mentor	Mentored two Greencastle-Antrim High-School work-study students.
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Awards and Honors

ASLA Student Merit Award Pennsylvania-Delaware Chapter Spring 2010	The American Society of Landscape Architecture Student Merit Award
Creative Achievement Award The Pennsylvania State University Spring 2010	The Pennsylvania State University, College of Arts and Architecture Landscape Architecture Graduate Student Creative Achievement Award
Olmsted Scholar The Pennsylvania State University Spring 2010	2010: Penn State Olmsted Scholar
Penn State Graduate School Poster Exhibition The Pennsylvania State University Spring 2010	The Pennsylvania State University Graduate Student Poster Exhibition: 2nd Place Finisher (\$250.00 Prize)
Golden Key The Pennsylvania State University Fall 2008 - Spring 2009	A Golden Key International Honour Society inductee by placing in the top 15% of my class at The Pennsylvania State University.

License(s), Membership(s), and Affiliation(s)

RLA 2007 - 2013	Registered Landscape Architect: Pennsylvania
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Professional Training

Wetland Delineation Field Practicum May 22-23, 2004	Wetland Training Institute
Wetland Delineation Certification Program May 17-21, 2004	Wetland Training Institute
Maryland Forest Conservation Qualified Professional Training May 17, 2003	Carroll County Community College

Eugene W. Martin
Curriculum Vitae

EDUCATION

- 2000-2009 Ph.D. Geography. University of Washington. Expected May, 2009
Dissertation: Puget Sound Nearshore Data Worlds
- 1996-1999 M.A. Geography. University of Washington.
Thesis: Conservation Geographic Information Systems in Ecuador: an Actor-Network Analysis
- 1985-1989 B.A. Forest Biology and statistics minor. University of Vermont
Senior Honors Paper: Genetic Introgression of Red and Black Spruce in Vermont, New Hampshire and Quebec

TEACHING POSITIONS

- 8/09 – present Visiting Instructor: GIS analysis, modeling and applications. University of Wisconsin – Stevens Point and GIS Center.
- 9/05 - 3/07 GIScience Curriculum Developer: GIS analysis, analytic cartography and programming. University of Washington.
- 3/02 Remote sensing intensive workshop instructor. University of Washington Extension. Seattle WA
- 9/99 – 8/01 GIScience Instructor. University of Washington Extension
GIS Certificate Program
- 9/00 – 12/00 GIScience Instructor. Department of Geography. University of Washington. Seattle WA
- 9/96 – 12/98 GIScience Teaching Assistant. Department of Geography, University of Washington. Seattle WA

OTHER EMPLOYMENT

- 10/06 – 6/07 Professional Consultant. Cartography and visualization community strategic planning process. Town of Dauphin Island AL
- 2/01 – 8/02 Professional Consultant, Database developer and analyst. University of Washington Urban Ecology Research Laboratory and Urbansim. Seattle WA
- 9/98 – 1/02 Founder, Principle and GIS Analyst. Community and Environment Spatial Analysis Center (CommEn Space). Seattle, WA
- 1/95 – 6/96 Technical Instructor of Forestry and Natural Resources, U.S. Peace Corps Ecuador
- 2/90 – 5/93 Peace Corps Volunteer – Forestry Extension, U.S. Peace Corps Ecuador
- 4/87 – 9/88 Environmental educator. Vermont State Parks

TEACHING RESPONSIBILITIES

- University of Wisconsin – Stevens Point Department of Geography-Geology.
Geographic Information Systems I. (Geog476/676)
Development and instruction: 2009 – present. Class size: 40
Develop, use and maintain a geographic-based spatial information system (GIS) for resource management. Acquire and assess spatial data. Compare raster and

vector data models. Computer-based geographic data handling, analysis, interpretation, and display. Cartographic and spatial modeling. Lecture, lab exercises, and final project.

University of Wisconsin – Stevens Point Department of Geography-Geology.

GIS Applications in Sustainability (Geog471/671)

Development and instruction: 2010 – present. Class size: 15

GIS concepts and applications to support regional and community level sustainability initiatives. Examination of spatial analysis topics and practices including sustainability indicators, resource management, public participation, decision-making and effective presentation. Lecture and lab exercises.

University of Wisconsin – Stevens Point Department of Geography-Geology.

GIS Applications in Sustainability (Geog481/681)

Development and instruction: 2009 – present. Class size: 15

Effectively construct, integrate, design and implement geodatabases. Examine storage, cataloging, maintenance and use of geospatial data within practical applications. Lecture, lab exercises and final project.

University of Washington Department of Geography

Geographic Information Systems Analysis. (Geog460)

Instructor 2000; teaching assistant 1996 – 2004. Class size: 100

Methods of analysis using geographic information systems. Operations on raster and vector data including map transformation, overlay, aggregation, focal statistics, cost path, surface flow, and iterative functions. Lecture, lab, and final project assignment.

University of Washington. Department of Geography

Coastal Geographic Information Systems (Geog462)

Development and teaching assistant 2006 and 2007. Class size: 60

Combines lectures about fundamental concepts in geographic information systems with hands-on computer lab assignments about coastal environment-society issues. Coastal feature data measurement, characterization, and movement related to the land-water and environment society dynamic.

University of Washington. Department of Geography

Analytic Cartography and Programming (Geog465)

Development and teaching assistant 2007. Class size: 40

An exploration of GIS database models, development, and management systems used in GIS. Uses programming languages most applicable to GIS database work, particularly related to extending current commercial GIS such as ArcGIS.

University of Washington Extension Program.

Images to Information remote sensing and GIS workshop

Development and instruction 2002. 20 hours of instruction. Class size: 35

A three-day weekend course for GIS practitioners about remote sensing best practices for GIS. Topics include image display, calibration, analysis and integration with GIS.

University of Washington Extension Certificate Program in GIS.

GIS Analysis

Design and instruction 1999-2001. Class size: 30

A three-month continuing education course for working professionals seeking to expand their work skills to include GIS. Course content includes database development, data analysis, project planning and execution.

Community and Environment Spatial Analysis Center.

GIS Mentorship Program

Development and instruction 1999-2000. Class size: 12

Design and deliver a six-month mentor and consultant program for local community organizations' work to implement and operate localized GIS projects. Course content includes effective cartography, responsible data reuse, practical analysis methods, participant developed projects and site visits. Funding made possible by the Bullett Foundation (\$10,000)

LANGUAGES SPOKEN

Spanish: fluent

REFEREED PUBLICATIONS

E. Martin, 2000. Actor-networks and implementation: examples from conservation GIS in Ecuador. *International Journal of Geographic Information Science*, 14, 715-738.

E. Martin, 2000. Showing topography between the lines, *Geospatial Solutions*.

BOOK CHAPTERS

E. Martin, C. Davis, T. Schaub and CommEn Space. 2002. Pavement. Durning, A. T. & Northwest Environment Watch (Eds.), *This Place on Earth 2002: Measuring What Matters* (pp. 23-33). Seattle: Northwest Environment Watch (now Sightline).

REPORTS/PAPERS READ OR/IN PRINT

E. Martin, D. Munro, and R. Weeks. 2002. Images to Information Workshop: Remotely Sensed Data for GIS Applications. Workshop schedule and materials. March 8-9 and March 29-30, 2002, Seattle, WA. University of Washington Educational Outreach.

E. Martin, C. Davis and CommEn Space. 2001. Atlas of targeted and acquired properties along Washington State's Cascade Crest – 2001. The Cascades Conservation Partnership.

E. Martin and C. Davis. 2000. The Pacific Northwest Conservation GIS User Assessment: Use of Geographic Information Systems (GIS) by Environmental Organizations in the Pacific Northwest. Seattle: Community and Environment Spatial Analysis Center.

E. Martin. 1999. Conservation geographic information systems in Ecuador: an actor-network analysis. Thesis. University of Washington, Seattle.

E. Martin. 1998. Taking another look: Science in Action revisited (Book review)

E. Martin, C. Davis and Carter-Mortimer, A. 1998. Puget Sound Basin Rapid Critical Habitat Hazard Assessment. Seattle, WA.

E. Martin 1997. Visualizing common lands: A framework component of GIS in other cultures. Seattle WA.

E. Martin 1997. Nonpoint water pollution and land use change: Detecting a control policy in the Puget Sound region with Spectral Ratios and Spectral Mixing. Seattle, WA.

E. Martin, C. Davis, & CommEn Space. 2001. Muckleshoot Indian Tribe Chinook Recovery Plan Watershed Assessment.

E. Martin. 2000. Measurement of Impervious Surfaces with Spectral Mixture Analysis and Landsat TM Data.

INVITED PRESENTATIONS

Representation of indigenous interests and values in spatial data. Panel on GIS and Indigenous People. Meetings of the AAG, Denver CO, 2005

CONFERENCE PRESENTATIONS

Knowledge production GIS. Abstract submitted and accepted for Meetings of the Association of American Geographers. Seattle WA., 2011.

Data sharing, order, and heterogeneous GIS. Abstract submitted and accepted for Meetings of the Association of American Geographers. Washington D.C., 2010.

Data Worlds of Puget Sounds nearshore environment. Abstract submitted and accepted for Meetings of the Association of American Geographers. Las Vegas NV, 2009.

Data communities. Meetings of the Association of American Geographers, **Denver CO, 2005.**

Data communities and data effects. Society for Conservation GIS Annual Conference, Monterey CA, 2003

Eugene Martin and CommEn Space. Monitoring Sprawl. Annual URISA Conference Washington State Chapter, Seattle WA, 2002

Eugene Martin and CommEn Space. Geographic information from images. Annual URISA Conference Washington State Chapter, Seattle WA, 2001

Janice Thomson and Eugene. Martin. Conservation Geographic Information Systems and Cartography. Grow Smart Washington, Seattle WA, October 6, 2001

Setting things straight: smoothing algorithms to post process GPS line data. Society for Conservation GIS Annual Conference, Borrego Springs CA, 2001.

E. Martin and C. Davis. 'Fast Map': A GIS database and interface for parcel evaluation. Land Trust Alliance PNW Rally, Leavenworth WA. 2001

E. Martin and C. Davis, 2001. Geographic Information and Spatial Analyses for the Muckleshoot Indian Tribe's Cedar River Chinook Recovery Plan. Pacific Salmon Information Network, Seattle WA, February 1, 2001

Watershed Impervious Surface Assessment Using Spectral Mixing Analysis. Society for Conservation GIS Annual Conference, Borrego Springs CA, 2000

CONTRACTS AND GRANTS

February 2011 – February 2012. UWSP Student and Employee Sustainable Transportation Costs: Assessment, Awareness and Decision Support. Wisconsin Institute for Sustainable Technologies Scholar Program and UWSP GIS Center. \$35,000

October 2006 – June 2007. Cartography and visualization for community sustainability planning. Town of Dauphin Island AL, \$16,000

May 1999 – September 2003. Fifty-three months of no-charge nonprofit office suite in Seattle's central business district (900 sq. ft.). Bank of America. \$47,700.

January 2001 – June 2001. Impervious surfaces and population density change 1990-2000 in Seattle WA, Portland OR, and Vancouver BC. E. Martin, C. Davis and CommEn Space. Northwest Environment Watch (now Sightline). \$12,000

March 2001 GIS hardware and software grant. Six licenses ArcView 3.3 and all extensions; Site license (three seats) ArcGIS and all extensions. Environmental Systems Research Institute Conservation Program. \$54,000 (estimated value)

February-April, 2000. Landsat TM spectral mixing analysis of impervious surface and land cover data development Pierce County, Washington. Parametrix, \$5,400.

February-December, 2000. GIS for land trusts in the Pacific Northwest. E. Martin, C. Davis and CommEn Space. Terra Foundation Inc. Longmont CO, \$12,500. Second award, \$23,000.

May-July, 2000. CommEn Space GIS Mentorship Program. E. Martin and CommEn Space. Bullitt Foundation, \$6,000

August, 2000. Trail inventory with GPS of Table Mountain NRCA. E. Martin, C. Davis and CommEn Space. The Nature Conservancy and Washington State Department of Natural Resources, \$6,600.

June 2000 – November 2000. Muckleshoot Cedar River Chinook recovery plan data development, analysis and cartography. E. Martin, C. Davis and CommEn Space. Muckleshoot Indian Tribe, \$9,000

November – 1999. Puget Sound oil spill simulation and shoreline vulnerability. E. Martin, C. Davis and CommEn Space. People For Puget Sound. \$5,400.

August-October, 1999. Landsat TM spectral mixing analysis of impervious surface and land cover data for King County, Washington. Parametrix, \$2,800.

September-October, 1999. Pacific Northwest Conservation GIS User Assessment. E. Martin and C. Davis. Brainerd Foundation, \$4,000.

March 1999 GIS hardware and software grant (HP workstation, Three licenses for ArcView 3.2 and extensions (Spatial Analyst, Image Analyst, Network Analyst, and ArcPress). E. Martin, C. Davis and CommEn Space Environmental Systems Research Institute Conservation Program. \$17,000 (estimated value)

October 1998 – January 1999. Puget Sound and Bainbridge Island GIS database and interface. Puget Sound Environmental Learning Center (now Islandwood). E. Martin, C. Davis and CommEn Space. Brainerd Foundation, \$14,000.

August 1989 – September 1989. Geographic distribution of students in congressional voting districts. E. Martin, C. Davis and CommEn Space. Bellevue Community College. \$4,300

CURRENT RESEARCH INTERESTS

Conceptual modeling of knowledge development with GIS

Locally developed knowledge practices

Public participation and collaborative decision-making

Sprawl measurement and management

Land use practices and critical habitat

Population density and walkable communities

Remote sensing, archival data and landscape change

Sustainable planning with GIS

Implications of data transfer and reuse

Digital libraries and public access

UNIVERSITY COMMITTEES

University of Washington Extension GIS Certificate Program

Advisory Board 1999 – present

HONORS

Xi Sigma Pi, National Forestry Honorary (1989).

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association of American Geographers

Society for Conservation GIS

Vice President 1999-2001

Society for Social Studies of Science

Urban and Regional Information Systems Association

THESIS ABSTRACT

Conservation Geographic Information Systems in Ecuador: An Actor-Network Analysis
Implementation and evaluation of Geographical Information Systems (GIS) can benefit from a broader theoretical foundation to support investigation, understanding and improvement. This paper discusses Actor-Network Theory (ANT) as a framework to delineate and evaluate the social and technical interactions involved in GIS implementation. The proposed process traces actor-network interactions through texts, technical objects, people, money and control. Actor alignment, actor-network stability and obligatory points of passage are evaluated to compare actor-networks. Case study research on conservation GIS implementation in Ecuador illustrates these methods. The strength of these actor-networks is examined through analysis of actors' interactions and the presence and function of an obligatory point of passage. Stronger actor-networks exhibit alignment among actors, co-location of an obligatory point of passage with the center of calculation and credit sharing.

DISSERTATION ABSTRACT

Data Worlds of Puget Sound's Nearshore Environment

Calls to investigate GIS implementation ecologies are decentered in this exploration of extra-organizational spatial data in ecologies of knowledge production GIS (KDGIS). This investigation's Data Worlds framework inherits elements from actor network theory and social worlds theory. Data World actor networks emerge from interorganizational activity that develops, transfers and reuses spatial data. They are shared discursive spaces of collective action for meaning-making in which data actor networks stabilize. With this framework qualitative analysis reveals social and technical patterns and pressures that shape GIS ecologies. Field instruments include text, survey, interviews and situational map analysis. The Puget Sound's nearshore ecosystem is a demonstration case study. Concern for the ecological good and services of the Puget Sound has received increasing attention since seven Washington salmon populations were listed endangered or threatened under the Endangered Species Act. Nearshore environments are identified as foundations for multiple food webs and are essential salmon habitat. Diverse measurement practices for nearshore physical, biological and process characteristics have developed rapidly over the past thirty years. These serve many organizations' decision-making initiatives to manage, monitor, develop, protect, preserve, and investigate the nearshore. Multiple organizations' GIS are engaged with Data Worlds of multiple data sets. These exhibit a variety of configurations and are formative to ecologies of the GIS

involved. Some are results of organizational practice, data models, classification, technology, interorganizational negotiations, and power hierarchies.

CURRICULUM VITAE

Timothy T. Kennedy

Instructor of Geography
Department of Geography and Geology
University of Wisconsin – Stevens Point
2001 Fourth Ave.
Stevens Point, WI 54481

715-346-4934
tkennedy@uwsp.edu

RESEARCH AND TEACHING INTERESTS

Land-use and land-cover classification, human – environment interactions, land change modeling, geographic information systems and science, remote sensing, landscape ecology, pedagogy, active student engagement, course delivery methods

EDUCATION

University of Wisconsin – Madison
Geography Department
Ph.D. (exp. 2014)

University of Wisconsin – Stevens Point
College of Natural Resources – Land Use Planning
M.Sc. 2009

Carroll University
Environmental Science – Natural Resource Conservation
emphasis, Earth Science minor
B.S. 2006

TEACHING EXPERIENCE

Instructor of Geography - University of Wisconsin – Stevens Point
GEO 377 – Remote Sensing I
GEO 476 – Geographic Information Systems I
Fall 2013 – Present

Adjunct Instructor - University of Wisconsin – Stevens Point
GEO 279 – Fundamentals of Geographic Information Systems
Lecture and laboratory instruction
Spring & Fall 2012
Spring 2013

Guest Lecturer – University of Wisconsin – Madison
GEOG 577 – Environmental Modeling with GIS
Landscape ecology and its application to land use change modeling
Lecture and discussion
Spring 2011

PROFESSIONAL EXPERIENCE

<i>Instructor of Geography:</i> Department of Geography and Geology, University of Wisconsin – Stevens Point, 2001 Fourth Ave, Stevens Point, WI 54481	2013 – Present
<i>Administrative Program Specialist (50% appointment):</i> Wisconsin State Cartographer's Office, University of Wisconsin-Madison, 550 N. Park Street, Madison, WI 53706.	2010 – 2013
<i>Project Assistant:</i> Urban and Regional Planning Department, University of Wisconsin-Madison, 925 Bascom Mall, Madison, WI 53706.	2010
<i>Project Assistant:</i> Wisconsin Center for Education Research. University of Wisconsin-Madison, 1075 E. Johnson St., Madison, WI 53706.	2009 – 2010
<i>Research Assistant:</i> Department of Urban and Regional Planning, University of Wisconsin-Madison, 925 Bascom Mall, Madison, WI 53706.	2009
<i>Research Technician:</i> Center for Land Use Education, College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve Street, Stevens Point, WI 54481.	2009 - 2010
<i>Graduate Research Assistant:</i> Center for Land Use Education, College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve Street, Stevens Point, WI 54481.	2007 –2009
<i>Environmental Analysis & Review Specialist:</i> Wisconsin Department of Natural Resources, Southeast Region, Milwaukee, WI.	2006 –2007

PUBLICATIONS

Veregin, Howard, and Timothy Kennedy. (2012). Online Information Dissemination at the Wisconsin State Cartographer's Office using Map Services and APIs in <i>Online Maps with APIs and WebServices</i> edited by M. P. Peterson. New York, NY: Springer.	2012
Haines, Anna L., Timothy T. Kennedy, Daniel L. McFarlane. (2011). Parcelization: Forest change agent in Northern Wisconsin. <i>Journal of Forestry</i> . 109: 101-108.	2011

- Kennedy, Timothy and Dan McFarlane. (2009). Identifying Parcelization and Land Use Patterns in Three Rural Northern Wisconsin Towns. Bayfield County Project Summary. 2009
- Kennedy, Timothy (2009). Landscape Features that Drive Parcelization. *The Land Use Tracker*. Vol. 9, Issue 1. 2009
- Kennedy, Timothy and Anna Haines. (2009). The Roots of Landscape Change: Parcelization. *The Land Use Tracker*. Vol. 8, Issue 4. 2009
- McFarlane, Daniel, Tim Kennedy, and Anna Haines. (2008). "Land parcelization and fragmentation: a preview of impending change." 2008 US-IALE Symposium Madison, Wisconsin April 6-10. 2009
- Olson, Eric, Daniel McFarlane, and Tim Kennedy. (2008). "Factors influencing land parcelization in amenity rich rural areas and the potential consequences of planning and policy variables." NRI Project Director's meeting, 2008 Rural Sociology Conference, Manchester, NH August 28-31. 2008

PRESENTATIONS

- Kennedy, Timothy. Challenges in Micro-Scale Land Change Models. University of Wisconsin – Stevens Point, Department of Geography and Geology. 2013
- Kennedy, Timothy. State Cartographer's Office pilot project efforts to integrate county PLSS datasets. Wisconsin Land Information Association, Lake Geneva, WI, annual conference. 2011
- Kennedy, Timothy. Deliberations in automated cartography: A web-based cartographic map for Wisconsin surveyors. University of Wisconsin-Madison GIS Day. 2011
- Kennedy, Timothy, AJ Wortley, Howard Veregin. From conception to actual: Deliberations in automated cartography. North American Cartographic Information Society, Madison, WI, annual conference. 2011
- Wortley, AJ, Brenda Hemstead and Timothy Kennedy. PLSS Inventory and status in Wisconsin. Wisconsin Land Information Association, La Crosse, WI, regional conference. 2011
- Veregin, Howard and Timothy Kennedy. Developing a statewide digital basemap for Wisconsin. Wisconsin Land Information Association, Madison, WI, annual conference. 2008

FUNDING

UW-Madison Lectures Committee Speaker Support award, \$300	2013
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SERVICE

WIGICC Steering Workgroup for State Data Integration member	2012 - 2013
Geography Department Cart/GIS Search & Screen committee member	2012 - 2013
GeoGrad Treasurer - Geography Department	2012 - 2013
Geospatial Alliance Geospatial Summit Planning Committee	2013
Geospatial Alliance ArcGIS for Server User Group – Founding member	2012
Saturday Science at the Wisconsin Discovery Institute – Geography Day	2012

AWARDS and HONORS

Excel Scholarship - Carroll University	2005 – 2006
National Council for Geographic Education – Award for Excellence	2006
Gamma Theta Upsilon Geography honor society	2006

PROFESSIONAL AFFILIATIONS

Wisconsin Geographic Information Coordination Council: Education sector voting member.	2012 - 2014
Association of American Geographers	2012
Wisconsin Land Information Association	2010
UW-Madison Geospatial Alliance	2010
Esri Wisconsin User Group	2010

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

Course Title

GIS and Geodesign for Sustainability and Resiliency

Transcript Title (limit 30 characters)

GIS and Geod for Sus and Resil

Three-digit course number

671

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

No

Note the crosslisted subjects

What is the primary divisional affiliation of this course?

Arts & Humanities

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Spring

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

Geographic Information Systems (GIS) and Geodesign concepts and applications to support regional and community level sustainability and resiliency initiatives. Examination of spatial analysis topics and practices including sustainability/resiliency indicators, resource management, public participation, decision making and effective presentation. 2 hrs lecture, 2 hrs lab.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Students must be enrolled in the Geodesign Certificate program. Intro to Geodesign (UW-Madison LA630, UW-SP Geog 430/630) Geodesign Methods (UW-Madison LA631, UW-SP Geog 631)

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Laboratory

Lecture

Administrative Information

Chief Academic Officer

John A Harrington

Designee of chief academic officer for approval authority

Deborah A Griffin; Evelyn A Howell

If there are additional contacts, please list

Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com>, Douglas Miskowiak (Doug.Miskowiak@uwsp.edu)

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course**Beginning Term**

Spring 2015-2016

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

Yes

Which program?

Geodesign Certificate

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

This course will be one of five courses designed for the Geodesign Capstone Certificate between UWSP and UW-Madison.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

This course is a prerequisite for LA634Z: Capstone Project.

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

This course explores the ways GIScience concepts and analysis methods can support sustainability and resiliency in Geodesign planning and implementation. A brief history and development of the sustainability and resiliency movements establishes context, motivation and priorities of Critical GIS activities that support community awareness and action. Characteristics of public participation GIS (PPGIS) frame the role of GIS to engage and empower the community to plan for sustainability and resiliency. Discovery of issues, spatial data and analyses follows a conceptual and geographical trend from local to global scales. These include population density, land cover change, urban growth/sprawl, transportation, walkable neighborhoods, water resources, green infrastructure, landscape prioritization, carbon footprint analysis, and climate change. GIS approaches include measurement of indicators/change, resource optimization, resource siting, least cost and proximity. Spatial data surveyed through the course comprise US decennial census, road networks, land use, parcels, NSIDC Arctic ice atlas, STRM, and utilities. Experience with these methods and data resources takes place in eight laboratory exercises presented regularly through the semester. Sustainability and resiliency initiatives, GIS implementation, and the GIS consultant's responsibilities are revisited repeatedly to appreciate the dynamism of technological support for well-informed, socially-based quality of life decision-making.

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

At UW-Madison a GIS Certificate is offered by the Department of Geography. The proposed Geodesign Capstone Program, however, is different in several regards. First, the Geodesign Certificate Program will primarily target design professionals who can demonstrate competency using GIS and other geospatial technologies through previous course work and/or professional projects. In contrast the GIS Certificate is a comprehensive program that may pertain to any application area, and requires no prior knowledge of GIS by students. More importantly, however, the GIS Certificate emphasizes the use of GIS to gather, evaluate, and communicate geospatial information, while the Geodesign Program will focus on the use of GIS and other geospatial technology to solve design problems. In a way what is taught in the GIS Certificate program can be seen as a prerequisite for the Geodesign Program. GIS is the art and science of "what is and how it came to be" whereas geodesign can be seen as the art and science of using geospatial information in the realm of "what could be." The Department of Geography has been consulted about the Geodesign Program and wrote a letter of support for a Geodesign Program Educational Innovation (EI) grant in March, 2013. The letter states that Geography does not anticipate that the Geodesign Program would compete with existing, residence programs in Cartography and GIS or duplicate the department's mission to provide core competencies in GIS. The Department of Engineering Professional Development (EPD) and its Master of Engineering in Sustainable Systems Engineering Program has acknowledged its support for the development of the Geodesign Program, also through a letter of support for the EI grant. EPD is collaborating with the Geodesign development team on the creation of the Introduction to Geodesign course for use in the Sustainable Systems Engineering (SSE) program.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

*Community & Environmental Soc (864)
Forest And Wildlife Ecology (396)
Zoology (970)
Urban And Regional Planning (944)
Civil and Environmental Engr (240)
Envir St - Gaylord Nelson Inst (360)
Geography (416)
Geoscience (420)*

List the instructor name and title (list multiple if applicable)

Eugene W. Martin (ABD) Visiting Instructor, GIS Center/Department of Geography/Geography, UW-Stevens point Timothy T. Kennedy, (ABD) Instructor of Geography, Department of Geography/Geology, UW-Stevens Point.

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

Eugene W. Martin: Eugene holds an M.A. in Geography from the University of Washington as well as a B.A. in Forest Biology from the University of Vermont. He will earn his PhD in Geography from the University of Washington. He has 17 years of curriculum development and teaching experience in GIS and Geodesign. Eugene has been teaching Geog 671: GIS and Geodesign for Sustainability and Resiliency as a visiting instructor for three years in the Department of Geography at UW-Stevens Point. Eugene has list of publications that focus on GIS and geodesign. Timothy T. Kennedy: Timothy is currently in a tenure track position with the Department of Geography/Geology at UW-Stevens Point. He holds a B.S. in

Environmental Science from Carrol University and an M.Sc. in Land Use Planning from UW-Madison. Timothy is ABD and expecting to complete his PhD in Geography from UW-Madison in 2014.

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

Final Syllabus_471_671.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This course is one of two advanced courses that are part of the proposed fifteen-credit Geodesign Certificate program between the Department of Landscape Architecture, UW-Madison and the GIS Center/Department of Geography/Geology, UW-Stevens Point

Provide an estimate of the expected enrollment

20-30 students at maximum enrollment

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

The course will meet for 15 weeks. There will be two hours of lectures and two hours of lab per week.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of a proposed Geodesign Capstone Program. The program is an interdisciplinary initiative within the University of Wisconsin System. The initiative is being led by the Department of Landscape Architecture at UW-Madison and the Department of Geography and Geology/GIS Center at UW-Stevens Point. The State Cartographer's Office (Department of Geography, UW-Madison) is a key partner and acts as a neutral party and liaison between the two departments. The Geodesign Program will follow a "home campus model." A graphic of this model is on page 3 (Figure 1: Geodesign Certificate Program Home Campus Model) of the attached Geodesign Capstone Program proposal. There will be a total of five three-credit courses. Faculty from each program will be responsible for teaching 1 foundation course and a second advanced course. The fifth course will be a capstone experience taught by faculty from both campuses. Courses will be cross listed between the Department of Landscape Architecture at UW-Madison and the Department of Geography/Geology at UW-Stevens Point. All courses will be taught online.

Additional attachments (optional) (please read "help" before uploading an attachment)

martin_e_cv_2011_v2.pdf

Kennedy_CV_12042013.pdf

GeodesignAPC Doc_Dec12_2013_JH..pdf

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

Instructor: Eugene Martin

Course Overview

This course explores the ways GIScience concepts and analysis methods can support sustainability and resiliency in Geodesign planning and implementation. A brief history and development of the sustainability and resiliency movements establishes context, motivation and priorities of *Critical GIS* activities that support community awareness and action. Characteristics of public participation GIS (PPGIS) frame the role of GIS to engage and empower the community to plan for sustainability and resiliency. Discovery of issues, spatial data and analyses follows a conceptual and geographical trend from local to global scales. These include population density, land cover change, urban growth/sprawl, transportation, walkable neighborhoods, water resources, green infrastructure, landscape prioritization, carbon footprint analysis, and climate change. GIS approaches include measurement of indicators/change, resource optimization, resource siting, least cost and proximity. Spatial data surveyed through the course comprise US decennial census, road networks, land use, parcels, NSIDC Arctic ice atlas, STRM, and utilities. Experience with these methods and data resources takes place in eight laboratory exercises presented regularly through the semester. Sustainability and resiliency initiatives, GIS implementation, and the GIS consultant's responsibilities are revisited repeatedly to appreciate the dynamism of technological support for well-informed, socially-based quality of life decision-making.

Target Audience

This course is intended for audiences interested in utilizing geospatial technologies for informing the decision-making process and engaging the public in issues of community sustainability and resiliency.

Readings

1. Campagna, Michele and Roseland, M. (2006). GIS for Sustainable Development. CRC Press. Boca Raton, FL.
2. Other readings from:
 - a. Pervis, Martin. Grainger, Alan. (2004). Exploring Sustainable Development: Geographic Perspectives. Earthscan. London, UK.
 - b. Bell, Simon. Morse, Stephen. (2008). Sustainability Indicators: Measuring the Immeasurable? 2nd Edition. Earthscan. London, UK.
 - c. Wise, Stephen. Craglia, Max. (2008). GIS and Evidence Based Policy Making. CRC Press. Boca Raton, FL.
 - d. Other readings as assigned by the instructor.

Grading

Lectures/Lab Class Participation:	Regular online attendance mandatory
Laboratory Exercises (Six at 10 points each):	60 Points
Graduate students will need to additionally complete a final project and report.	
Exams (2 at 20 points each)	40 Points

GEOG471/671/ LA 671 GIS and Geodesign for Sustainability and Resiliency

Course Logistics

Syllabus – Spring 2014

Total Points

100

Grading Scale

Ranges of percentage scores, participation points, quiz points, exam points, collaborative studio points, course points, and their equivalent letter grades are shown below. By referring to this table you can determine your letter-grade standing at any point in the course.

<u>Percent</u>	<u>10 Lab</u>	<u>20 Exam</u>	<u>Course Pts.</u>	<u>Letter Grade</u>
93-100	9.3	18.6	100-93	A
90	9.0	18.0	90	A-
87	8.7	17.4	87	B+
83	8.3	16.6	83	B
80	8.0	16.0	80	B-
77	7.7	15.4	77	C+
73	7.3	14.6	73	C
70	7.0	14.0	70	C-
67	6.7	13.4	67	D+
63	6.3	12.6	63	D
<63	<6.3	<12.6	<63	F

Course Schedule*Module 1: Overview of GIS and Geodesign for Sustainability and Resiliency**Module 2: GIS tools and measurement for sustainable development and resiliency**Module 3: Spatial scale and spatial interaction – role of geography**Module 4: Demographic and economic indicators and relationships**Lab 1: Demographic and economic indicators and relationships (U.S. Census)**Module 5: Neighborhoods, walkability and bikability**Lab 2: Detecting neighborhoods, walkability and service zones**Module 6: Sprawl, urban morphology, land availability and use**Lab 3: Urban morphology, sprawl indicators and land use capacity**Midterm Examination**Module 7: Sustainable transportation, transportation sustainability, mobility**Lab4: Transportation and emissions**Module 8: Measuring carbon footprints**Lab 5: Green Infrastructure**Module 9: Cost of Community Services**Module 10: Foodsheds**Lab 6: Footprints and Foodsheds**Final Examination*

Eugene W. Martin
Curriculum Vitae

EDUCATION

- 2000-2009 Ph.D. Geography. University of Washington. Expected May, 2009
Dissertation: Puget Sound Nearshore Data Worlds
- 1996-1999 M.A. Geography. University of Washington.
Thesis: Conservation Geographic Information Systems in Ecuador: an Actor-Network Analysis
- 1985-1989 B.A. Forest Biology and statistics minor. University of Vermont
Senior Honors Paper: Genetic Introgression of Red and Black Spruce in Vermont, New Hampshire and Quebec

TEACHING POSITIONS

- 8/09 – present Visiting Instructor: GIS analysis, modeling and applications. University of Wisconsin – Stevens Point and GIS Center.
- 9/05 - 3/07 GIScience Curriculum Developer: GIS analysis, analytic cartography and programming. University of Washington.
- 3/02 Remote sensing intensive workshop instructor. University of Washington Extension. Seattle WA
- 9/99 – 8/01 GIScience Instructor. University of Washington Extension
GIS Certificate Program
- 9/00 – 12/00 GIScience Instructor. Department of Geography. University of Washington. Seattle WA
- 9/96 – 12/98 GIScience Teaching Assistant. Department of Geography, University of Washington. Seattle WA

OTHER EMPLOYMENT

- 10/06 – 6/07 Professional Consultant. Cartography and visualization community strategic planning process. Town of Dauphin Island AL
- 2/01 – 8/02 Professional Consultant, Database developer and analyst. University of Washington Urban Ecology Research Laboratory and Urbansim. Seattle WA
- 9/98 – 1/02 Founder, Principle and GIS Analyst. Community and Environment Spatial Analysis Center (CommEn Space). Seattle, WA
- 1/95 – 6/96 Technical Instructor of Forestry and Natural Resources, U.S. Peace Corps Ecuador
- 2/90 – 5/93 Peace Corps Volunteer – Forestry Extension, U.S. Peace Corps Ecuador
- 4/87 – 9/88 Environmental educator. Vermont State Parks

TEACHING RESPONSIBILITIES

- University of Wisconsin – Stevens Point Department of Geography-Geology.
Geographic Information Systems I. (Geog476/676)
Development and instruction: 2009 – present. Class size: 40
Develop, use and maintain a geographic-based spatial information system (GIS) for resource management. Acquire and assess spatial data. Compare raster and

vector data models. Computer-based geographic data handling, analysis, interpretation, and display. Cartographic and spatial modeling. Lecture, lab exercises, and final project.

University of Wisconsin – Stevens Point Department of Geography-Geology.

GIS Applications in Sustainability (Geog471/671)

Development and instruction: 2010 – present. Class size: 15

GIS concepts and applications to support regional and community level sustainability initiatives. Examination of spatial analysis topics and practices including sustainability indicators, resource management, public participation, decision-making and effective presentation. Lecture and lab exercises.

University of Wisconsin – Stevens Point Department of Geography-Geology.

GIS Applications in Sustainability (Geog481/681)

Development and instruction: 2009 – present. Class size: 15

Effectively construct, integrate, design and implement geodatabases. Examine storage, cataloging, maintenance and use of geospatial data within practical applications. Lecture, lab exercises and final project.

University of Washington Department of Geography

Geographic Information Systems Analysis. (Geog460)

Instructor 2000; teaching assistant 1996 – 2004. Class size: 100

Methods of analysis using geographic information systems. Operations on raster and vector data including map transformation, overlay, aggregation, focal statistics, cost path, surface flow, and iterative functions. Lecture, lab, and final project assignment.

University of Washington. Department of Geography

Coastal Geographic Information Systems (Geog462)

Development and teaching assistant 2006 and 2007. Class size: 60

Combines lectures about fundamental concepts in geographic information systems with hands-on computer lab assignments about coastal environment-society issues. Coastal feature data measurement, characterization, and movement related to the land-water and environment society dynamic.

University of Washington. Department of Geography

Analytic Cartography and Programming (Geog465)

Development and teaching assistant 2007. Class size: 40

An exploration of GIS database models, development, and management systems used in GIS. Uses programming languages most applicable to GIS database work, particularly related to extending current commercial GIS such as ArcGIS.

University of Washington Extension Program.

Images to Information remote sensing and GIS workshop

Development and instruction 2002. 20 hours of instruction. Class size: 35

A three-day weekend course for GIS practitioners about remote sensing best practices for GIS. Topics include image display, calibration, analysis and integration with GIS.

University of Washington Extension Certificate Program in GIS.

GIS Analysis

Design and instruction 1999-2001. Class size: 30

A three-month continuing education course for working professionals seeking to expand their work skills to include GIS. Course content includes database development, data analysis, project planning and execution.

Community and Environment Spatial Analysis Center.

GIS Mentorship Program

Development and instruction 1999-2000. Class size: 12

Design and deliver a six-month mentor and consultant program for local community organizations' work to implement and operate localized GIS projects. Course content includes effective cartography, responsible data reuse, practical analysis methods, participant developed projects and site visits. Funding made possible by the Bullett Foundation (\$10,000)

LANGUAGES SPOKEN

Spanish: fluent

REFEREED PUBLICATIONS

E. Martin, 2000. Actor-networks and implementation: examples from conservation GIS in Ecuador. *International Journal of Geographic Information Science*, 14, 715-738.

E. Martin, 2000. Showing topography between the lines, *Geospatial Solutions*.

BOOK CHAPTERS

E. Martin, C. Davis, T. Schaub and CommEn Space. 2002. Pavement. Durning, A. T. & Northwest Environment Watch (Eds.), *This Place on Earth 2002: Measuring What Matters* (pp. 23-33). Seattle: Northwest Environment Watch (now Sightline).

REPORTS/PAPERS READ OR/IN PRINT

E. Martin, D. Munro, and R. Weeks. 2002. Images to Information Workshop: Remotely Sensed Data for GIS Applications. Workshop schedule and materials. March 8-9 and March 29-30, 2002, Seattle, WA. University of Washington Educational Outreach.

E. Martin, C. Davis and CommEn Space. 2001. Atlas of targeted and acquired properties along Washington State's Cascade Crest – 2001. The Cascades Conservation Partnership.

E. Martin and C. Davis. 2000. The Pacific Northwest Conservation GIS User Assessment: Use of Geographic Information Systems (GIS) by Environmental Organizations in the Pacific Northwest. Seattle: Community and Environment Spatial Analysis Center.

E. Martin. 1999. Conservation geographic information systems in Ecuador: an actor-network analysis. Thesis. University of Washington, Seattle.

E. Martin. 1998. Taking another look: Science in Action revisited (Book review)

E. Martin, C. Davis and Carter-Mortimer, A. 1998. Puget Sound Basin Rapid Critical Habitat Hazard Assessment. Seattle, WA.

E. Martin 1997. Visualizing common lands: A framework component of GIS in other cultures. Seattle WA.

E. Martin 1997. Nonpoint water pollution and land use change: Detecting a control policy in the Puget Sound region with Spectral Ratios and Spectral Mixing. Seattle, WA.

E. Martin, C. Davis, & CommEn Space. 2001. Muckleshoot Indian Tribe Chinook Recovery Plan Watershed Assessment.

E. Martin. 2000. Measurement of Impervious Surfaces with Spectral Mixture Analysis and Landsat TM Data.

INVITED PRESENTATIONS

Representation of indigenous interests and values in spatial data. Panel on GIS and Indigenous People. Meetings of the AAG, Denver CO, 2005

CONFERENCE PRESENTATIONS

Knowledge production GIS. Abstract submitted and accepted for Meetings of the Association of American Geographers. Seattle WA., 2011.

Data sharing, order, and heterogeneous GIS. Abstract submitted and accepted for Meetings of the Association of American Geographers. Washington D.C., 2010.

Data Worlds of Puget Sounds nearshore environment. Abstract submitted and accepted for Meetings of the Association of American Geographers. Las Vegas NV, 2009.

Data communities. Meetings of the Association of American Geographers, **Denver CO, 2005.**

Data communities and data effects. Society for Conservation GIS Annual Conference, Monterey CA, 2003

Eugene Martin and CommEn Space. Monitoring Sprawl. Annual URISA Conference Washington State Chapter, Seattle WA, 2002

Eugene Martin and CommEn Space. Geographic information from images. Annual URISA Conference Washington State Chapter, Seattle WA, 2001

Janice Thomson and Eugene. Martin. Conservation Geographic Information Systems and Cartography. Grow Smart Washington, Seattle WA, October 6, 2001

Setting things straight: smoothing algorithms to post process GPS line data. Society for Conservation GIS Annual Conference, Borrego Springs CA, 2001.

E. Martin and C. Davis. 'Fast Map': A GIS database and interface for parcel evaluation. Land Trust Alliance PNW Rally, Leavenworth WA. 2001

E. Martin and C. Davis, 2001. Geographic Information and Spatial Analyses for the Muckleshoot Indian Tribe's Cedar River Chinook Recovery Plan. Pacific Salmon Information Network, Seattle WA, February 1, 2001

Watershed Impervious Surface Assessment Using Spectral Mixing Analysis. Society for Conservation GIS Annual Conference, Borrego Springs CA, 2000

CONTRACTS AND GRANTS

February 2011 – February 2012. UWSP Student and Employee Sustainable Transportation Costs: Assessment, Awareness and Decision Support. Wisconsin Institute for Sustainable Technologies Scholar Program and UWSP GIS Center. \$35,000

October 2006 – June 2007. Cartography and visualization for community sustainability planning. Town of Dauphin Island AL, \$16,000

May 1999 – September 2003. Fifty-three months of no-charge nonprofit office suite in Seattle's central business district (900 sq. ft.). Bank of America. \$47,700.

January 2001 – June 2001. Impervious surfaces and population density change 1990-2000 in Seattle WA, Portland OR, and Vancouver BC. E. Martin, C. Davis and CommEn Space. Northwest Environment Watch (now Sightline). \$12,000

March 2001 GIS hardware and software grant. Six licenses ArcView 3.3 and all extensions; Site license (three seats) ArcGIS and all extensions. Environmental Systems Research Institute Conservation Program. \$54,000 (estimated value)

February-April, 2000. Landsat TM spectral mixing analysis of impervious surface and land cover data development Pierce County, Washington. Parametrix, \$5,400.

February-December, 2000. GIS for land trusts in the Pacific Northwest. E. Martin, C. Davis and CommEn Space. Terra Foundation Inc. Longmont CO, \$12,500. Second award, \$23,000.

May-July, 2000. CommEn Space GIS Mentorship Program. E. Martin and CommEn Space. Bullitt Foundation, \$6,000

August, 2000. Trail inventory with GPS of Table Mountain NRCA. E. Martin, C. Davis and CommEn Space. The Nature Conservancy and Washington State Department of Natural Resources, \$6,600.

June 2000 – November 2000. Muckleshoot Cedar River Chinook recovery plan data development, analysis and cartography. E. Martin, C. Davis and CommEn Space. Muckleshoot Indian Tribe, \$9,000

November – 1999. Puget Sound oil spill simulation and shoreline vulnerability. E. Martin, C. Davis and CommEn Space. People For Puget Sound. \$5,400.

August-October, 1999. Landsat TM spectral mixing analysis of impervious surface and land cover data for King County, Washington. Parametrix, \$2,800.

September-October, 1999. Pacific Northwest Conservation GIS User Assessment. E. Martin and C. Davis. Brainerd Foundation, \$4,000.

March 1999 GIS hardware and software grant (HP workstation, Three licenses for ArcView 3.2 and extensions (Spatial Analyst, Image Analyst, Network Analyst, and ArcPress). E. Martin, C. Davis and CommEn Space Environmental Systems Research Institute Conservation Program. \$17,000 (estimated value)

October 1998 – January 1999. Puget Sound and Bainbridge Island GIS database and interface. Puget Sound Environmental Learning Center (now Islandwood). E. Martin, C. Davis and CommEn Space. Brainerd Foundation, \$14,000.

August 1989 – September 1989. Geographic distribution of students in congressional voting districts. E. Martin, C. Davis and CommEn Space. Bellevue Community College. \$4,300

CURRENT RESEARCH INTERESTS

Conceptual modeling of knowledge development with GIS

Locally developed knowledge practices

Public participation and collaborative decision-making

Sprawl measurement and management

Land use practices and critical habitat

Population density and walkable communities

Remote sensing, archival data and landscape change

Sustainable planning with GIS

Implications of data transfer and reuse

Digital libraries and public access

UNIVERSITY COMMITTEES

University of Washington Extension GIS Certificate Program

Advisory Board 1999 – present

HONORS

Xi Sigma Pi, National Forestry Honorary (1989).

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association of American Geographers

Society for Conservation GIS

Vice President 1999-2001

Society for Social Studies of Science

Urban and Regional Information Systems Association

THESIS ABSTRACT

Conservation Geographic Information Systems in Ecuador: An Actor-Network Analysis
Implementation and evaluation of Geographical Information Systems (GIS) can benefit from a broader theoretical foundation to support investigation, understanding and improvement. This paper discusses Actor-Network Theory (ANT) as a framework to delineate and evaluate the social and technical interactions involved in GIS implementation. The proposed process traces actor-network interactions through texts, technical objects, people, money and control. Actor alignment, actor-network stability and obligatory points of passage are evaluated to compare actor-networks. Case study research on conservation GIS implementation in Ecuador illustrates these methods. The strength of these actor-networks is examined through analysis of actors' interactions and the presence and function of an obligatory point of passage. Stronger actor-networks exhibit alignment among actors, co-location of an obligatory point of passage with the center of calculation and credit sharing.

DISSERTATION ABSTRACT

Data Worlds of Puget Sound's Nearshore Environment

Calls to investigate GIS implementation ecologies are decentered in this exploration of extra-organizational spatial data in ecologies of knowledge production GIS (KDGIS). This investigation's Data Worlds framework inherits elements from actor network theory and social worlds theory. Data World actor networks emerge from interorganizational activity that develops, transfers and reuses spatial data. They are shared discursive spaces of collective action for meaning-making in which data actor networks stabilize. With this framework qualitative analysis reveals social and technical patterns and pressures that shape GIS ecologies. Field instruments include text, survey, interviews and situational map analysis. The Puget Sound's nearshore ecosystem is a demonstration case study. Concern for the ecological good and services of the Puget Sound has received increasing attention since seven Washington salmon populations were listed endangered or threatened under the Endangered Species Act. Nearshore environments are identified as foundations for multiple food webs and are essential salmon habitat. Diverse measurement practices for nearshore physical, biological and process characteristics have developed rapidly over the past thirty years. These serve many organizations' decision-making initiatives to manage, monitor, develop, protect, preserve, and investigate the nearshore. Multiple organizations' GIS are engaged with Data Worlds of multiple data sets. These exhibit a variety of configurations and are formative to ecologies of the GIS

involved. Some are results of organizational practice, data models, classification, technology, interorganizational negotiations, and power hierarchies.

CURRICULUM VITAE

Timothy T. Kennedy

Instructor of Geography
Department of Geography and Geology
University of Wisconsin – Stevens Point
2001 Fourth Ave.
Stevens Point, WI 54481

715-346-4934
tkennedy@uwsp.edu

RESEARCH AND TEACHING INTERESTS

Land-use and land-cover classification, human – environment interactions, land change modeling, geographic information systems and science, remote sensing, landscape ecology, pedagogy, active student engagement, course delivery methods

EDUCATION

University of Wisconsin – Madison
Geography Department
Ph.D. (exp. 2014)

University of Wisconsin – Stevens Point
College of Natural Resources – Land Use Planning
M.Sc. 2009

Carroll University
Environmental Science – Natural Resource Conservation
emphasis, Earth Science minor
B.S. 2006

TEACHING EXPERIENCE

Instructor of Geography - University of Wisconsin – Stevens Point
GEO 377 – Remote Sensing I
GEO 476 – Geographic Information Systems I
Fall 2013 – Present

Adjunct Instructor - University of Wisconsin – Stevens Point
GEO 279 – Fundamentals of Geographic Information Systems
Lecture and laboratory instruction
Spring & Fall 2012
Spring 2013

Guest Lecturer – University of Wisconsin – Madison
GEOG 577 – Environmental Modeling with GIS
Landscape ecology and its application to land use change modeling
Lecture and discussion
Spring 2011

PROFESSIONAL EXPERIENCE

<i>Instructor of Geography:</i> Department of Geography and Geology, University of Wisconsin – Stevens Point, 2001 Fourth Ave, Stevens Point, WI 54481	2013 – Present
<i>Administrative Program Specialist (50% appointment):</i> Wisconsin State Cartographer's Office, University of Wisconsin-Madison, 550 N. Park Street, Madison, WI 53706.	2010 – 2013
<i>Project Assistant:</i> Urban and Regional Planning Department, University of Wisconsin-Madison, 925 Bascom Mall, Madison, WI 53706.	2010
<i>Project Assistant:</i> Wisconsin Center for Education Research. University of Wisconsin-Madison, 1075 E. Johnson St., Madison, WI 53706.	2009 – 2010
<i>Research Assistant:</i> Department of Urban and Regional Planning, University of Wisconsin-Madison, 925 Bascom Mall, Madison, WI 53706.	2009
<i>Research Technician:</i> Center for Land Use Education, College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve Street, Stevens Point, WI 54481.	2009 - 2010
<i>Graduate Research Assistant:</i> Center for Land Use Education, College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve Street, Stevens Point, WI 54481.	2007 –2009
<i>Environmental Analysis & Review Specialist:</i> Wisconsin Department of Natural Resources, Southeast Region, Milwaukee, WI.	2006 –2007

PUBLICATIONS

Veregin, Howard, and Timothy Kennedy. (2012). Online Information Dissemination at the Wisconsin State Cartographer's Office using Map Services and APIs in <i>Online Maps with APIs and WebServices</i> edited by M. P. Peterson. New York, NY: Springer.	2012
Haines, Anna L., Timothy T. Kennedy, Daniel L. McFarlane. (2011). Parcelization: Forest change agent in Northern Wisconsin. <i>Journal of Forestry</i> . 109: 101-108.	2011

- Kennedy, Timothy and Dan McFarlane. (2009). Identifying Parcelization and Land Use Patterns in Three Rural Northern Wisconsin Towns. Bayfield County Project Summary. 2009
- Kennedy, Timothy (2009). Landscape Features that Drive Parcelization. *The Land Use Tracker*. Vol. 9, Issue 1. 2009
- Kennedy, Timothy and Anna Haines. (2009). The Roots of Landscape Change: Parcelization. *The Land Use Tracker*. Vol. 8, Issue 4. 2009
- McFarlane, Daniel, Tim Kennedy, and Anna Haines. (2008). "Land parcelization and fragmentation: a preview of impending change." 2008 US-IALE Symposium Madison, Wisconsin April 6-10. 2009
- Olson, Eric, Daniel McFarlane, and Tim Kennedy. (2008). "Factors influencing land parcelization in amenity rich rural areas and the potential consequences of planning and policy variables." NRI Project Director's meeting, 2008 Rural Sociology Conference, Manchester, NH August 28-31. 2008

PRESENTATIONS

- Kennedy, Timothy. Challenges in Micro-Scale Land Change Models. University of Wisconsin – Stevens Point, Department of Geography and Geology. 2013
- Kennedy, Timothy. State Cartographer's Office pilot project efforts to integrate county PLSS datasets. Wisconsin Land Information Association, Lake Geneva, WI, annual conference. 2011
- Kennedy, Timothy. Deliberations in automated cartography: A web-based cartographic map for Wisconsin surveyors. University of Wisconsin-Madison GIS Day. 2011
- Kennedy, Timothy, AJ Wortley, Howard Veregin. From conception to actual: Deliberations in automated cartography. North American Cartographic Information Society, Madison, WI, annual conference. 2011
- Wortley, AJ, Brenda Hemstead and Timothy Kennedy. PLSS Inventory and status in Wisconsin. Wisconsin Land Information Association, La Crosse, WI, regional conference. 2011
- Veregin, Howard and Timothy Kennedy. Developing a statewide digital basemap for Wisconsin. Wisconsin Land Information Association, Madison, WI, annual conference. 2008

FUNDING

UW-Madison Lectures Committee Speaker Support award, \$300	2013
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SERVICE

WIGICC Steering Workgroup for State Data Integration member	2012 - 2013
Geography Department Cart/GIS Search & Screen committee member	2012 - 2013
GeoGrad Treasurer - Geography Department	2012 - 2013
Geospatial Alliance Geospatial Summit Planning Committee	2013
Geospatial Alliance ArcGIS for Server User Group – Founding member	2012
Saturday Science at the Wisconsin Discovery Institute – Geography Day	2012

AWARDS and HONORS

Excel Scholarship - Carroll University	2005 – 2006
National Council for Geographic Education – Award for Excellence	2006
Gamma Theta Upsilon Geography honor society	2006

PROFESSIONAL AFFILIATIONS

Wisconsin Geographic Information Coordination Council: Education sector voting member.	2012 - 2014
Association of American Geographers	2012
Wisconsin Land Information Association	2010
UW-Madison Geospatial Alliance	2010
Esri Wisconsin User Group	2010

New Course Proposal

Subject Kinesiology (742)

Status Under Review by Divisional Committee

Proposer Randall J Gretebeck

Basic Information

Course Title

Nutrition in Physical Activity and Health

Transcript Title (limit 30 characters)

Nutrition, Fitness and Health

Three-digit course number

525

Is this an honors course?

No

Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?

No

Will this course be crosslisted?

Yes

Note the crosslisted subjects

Nutritional Sciences (694)

What is the primary divisional affiliation of this course?

Biological Sciences

Is this a topics course?

No

Can students enroll in this course more than once for credit?

No

If yes, please justify

Typically Offered

Fall, Spring, Summer

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

The purpose of this course is to provide undergraduate and graduate students with both scientific knowledge and application of nutrition related to exercise, health, and sports.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Admission to Kinesiology(Athletic Training, Exercise and Movement Science, or Physical Education Teacher Education) or Nutritional Science major and Physiology 335

Indicate the component(s) that comprise the course. Check all that apply

Discussion

Lecture

Administrative Information

Chief Academic Officer

Dorothy Farrar-Edwards

Designee of chief academic officer for approval authority

Diana L Taylor; Stephanie Quinn

If there are additional contacts, please list

Ann Ward

Will any courses be discontinued as a result of this proposal?

No

List course number(s) and complete a course discontinuation proposal for each course

Beginning Term

Summer 2014

Academic/Program Information

Is this course intended for a new academic program for which UAPC approval has not yet been finalized?

No

Which program?

Explain the relationship and importance of the proposed course to existing programs or future programs. (A program is a certificate, major or degree.)

At a growing numbers of universities (including most of the Big Ten) Kinesiology has become the predominant degree leading to admission to professional schools in the Health Care Sciences, including Medicine, Physical Therapy, Physician's Assistant, Occupational Therapy, Athletic Training, and other physical activity and health professions. This proposed course is designed to enhance the offerings available to Kinesiology majors, and provide students with a greater understanding of the interrelationship between diet and exercise in sports and health.

Are any of these programs outside your academic unit?

No

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Specify which requirement(s) this course meets, if any (e.g. satisfies third-level language, meets the major's capstone requirement, fulfills PhD minor requirement).

Do any of these requirements affect programs (degrees, majors, certificates) outside your academic unit?

Indicate the subjects that are most closely aligned with the other academic units. The proposal will be sent to the academic units that support those subjects for review.

Course Content

Describe the course content

To understand the major dietary nutrients which contribute to energy production, metabolic integration and other fundamental biological function during exercise and sports. To learn the cellular mechanisms governing the interactions between diet, environmental factors and body with special reference to the role of exercise. To learn how diet can affect health, exercise performance, and the major practices to use nutrients as means to improve health, enhance exercise benefits, and promote performance.

Address the relationship of this course to other UW-Madison courses, including possible duplication of content

There are no courses in the Department of Nutritional Sciences that addresses sports or fitness. In addition, while Nutritional Sciences naturally has courses concerning nutrition in relation to health and disease (431 Nutrition in the Life Span, 625 Advanced Nutrition) these courses do not address the interrelationship between diet and exercise which is the primary focus of this proposed course.

Is there a relationship to courses outside your subject?

Yes

Indicate the outside affected subject(s). The proposal will be sent to those subjects for review.

Nutritional Sciences (694)

List the instructor name and title (list multiple if applicable)

Randall Gretebeck PhD, RD, FACSM Scientist

If the instructor is not a tenured or tenure-track faculty member at UW-Madison, please explain the instructor's qualifications here. Then, go to the "Justifications" tab and upload the instructor's c.v. in the "Additional Attachments" section.

The instructor is a Registered Dietitian with a PhD in Exercise Physiology and a fellow of the American College of Sports Medicine

Attach a syllabus. See "help" for an explanation of what must be included in the syllabus.

KINES 525 syllabus 5-7-13.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

Adequate nutrition plays a vital role in athletic performance. Therefore it is important that Kinesiology students have a thorough understanding of how different nutrients impact exercise and sports. In addition, diet/exercise interactions play an important role in maintaining health and in treating disease. This proposed course covers this content, which is not covered in other courses.

Provide an estimate of the expected enrollment

50-60 per semester

Justify the number of credits, following the federal definition of a credit hour (see help). Include the number of contact hours or, if contact hours are not an accurate measure of credit, provide an explanation of how credits are measured

This three credit course meets for 75 minutes twice a week for a total of 150 minutes/week for 16 weeks.

If this is a variable credit course, provide rationale

This is NOT a variable credit course

Additional comments (optional)

Additional attachments (optional) (please read "help" before uploading an attachment)

RGVITA 2013 PDF.pdf

L&S Designations

Should the course be reviewed for L&S liberal arts and science (LAS) credit?

No

What is the rationale for seeking LAS credit?

Level of the course, for L&S attributes (value required for all L&S courses and courses requesting LAS credit)

Should the course be reviewed for L&S breadth requirements?

No

Indicate which:

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

University of Wisconsin
KINES 525
Nutrition in Physical Activity and Health
Spring 2013

I. Description of the Course

The purpose of this course is to provide undergraduate and graduate students with both scientific knowledge and application of nutrition related to exercise, health, and sports.

II. Course Objectives

1. To understand the major dietary nutrients which contribute to energy production, metabolic integration and other fundamental biological function during exercise and sports.
2. To learn the cellular mechanisms governing the interactions between diet, environmental factors and body with special reference to the role of exercise.
3. To learn how diet can affect health, exercise performance, and the major practices to use nutrients as means to improve health, enhance exercise benefits, and promote performance.

III. Instructor

Professor: Randall Gretebeck
2039 Natatorium
2000 Observatory Drive
Tel: 890-4817
Office hours: Tuesdays and Thursdays 9:15-10:00 or by appointment

IV. Time, Location and Credits

This 3-credit course will be taught at 8:00-9:15 TR, in Room 1140, Unit 2-Natatorium

V. Prerequisites

Kinesiology Major and KINES 314: Physiology of Exercise or consent of the instructor

VI. Means of Learning and Textbook

Lectures; assigned reading; on-line search for information; discussion

Textbook: *Sport Nutrition for Health and Performance* by M. Manore and J. Thompson.
Publisher: Human Kinetics, 2009.

VII. Methods of Evaluation

- | | |
|---------------|-----|
| 1. Exam 1 | 33% |
| 2. Exam 2 | 33% |
| 3. Final exam | 34% |

VIII. Course Syllabus

<i>Wk</i>	<i>Lec</i>	<i>Date</i>	<i>Content</i>	<i>Textbook</i>
1	1	1/22	Introduction, bioenergetics-metabolism	
	2	1/24	Energy transfer, energy expenditure	
2	3	1/29	Carbohydrate as an energy fuel in exercising muscle	Chapter 2
	4	1/31	CHO manipulation for exercise performance	
3	5	2/5	Lipid metabolism and fuel utilization during exercise	Chapter 3
	6	2/7	Enhancing fat utilization for endurance performance	
4	7	2/12	Regulation of protein and amino acid metabolism	Chapter 4
	8	2/14	Evaluation of ergogenic aids	Chapter 16
5	9	2/19	Water and electrolyte balance during exercise	Chapter 8
	10	2/21	Review for Exam 1	
6	11	2/26	Exam 1	
	12	2/28	Nutrition & fitness assessment	Chapter 7
7	13	3/5	Vitamins and performance	Chapter 9
		3/7	Antioxidant nutrients and exercise	Chapter 10
8	14	3/12	Minerals and performance	Chapter 11&13
	15	3/14	Nutrition & fitness assessment	Supp. Readings
9	16	3/19	Diet, exercise, & and insulin resistance	Supp. Readings
		3/21	Diet and exercise as treatment for diabetes	Supp. Readings
11	17	4/2	Nutrition, exercise and cancer	
	18	4/4	Nutrition, exercise and cardiovascular disease	
12	19	4/9	Review for exam 2	
	20	4/11	Exam 2	
13	21	4/16	Body composition	Chapter 5&6
	22	4/18	Classification of obesity	Chapter 5&6
14	23	4/23	Exercise and obesity	Chapter 14
	24	4/25	Hormones and gender in obesity	
15	25	4/30	Diet and weight loss	Chapter 6
	26	5/2	Nutritional requirements for physically active females	Chapter 15
16	27	5/7	Nutritional considerations for physically active elderly	Supp. Readings
		5/9	General Review	

IX Grading

A	=	93-100%
AB	=	88-92%
B	=	83-87%
BC	=	78-82%
C	=	70-77%
D	=	60-69%
F	=	0-59%

X Accommodation Statement:

This course is designed to meet the needs of all of our students. The instructor will try to ensure that all students are fully included in the course activities. Please let the instructor know if you are in need of any special accommodations in the curriculum, instruction, or assessments of this course to enable you to participate fully.

XI STATEMENT ON ACADEMIC HONESTY:

The board of regents, administrators, faculty, academic staff, and students of the University of Wisconsin System believe that academic honesty and integrity are fundamental to the mission of higher education and the UW. All students have an obligation to conduct their academic work according to University Standards. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards will be confronted and must accept the consequences of their actions.

Supplemental Reading

- American Cancer Society, & American College of Sports Medicine. (1996). *Conference on Nutrition and Physical Activity to Optimize Performance and Well-being : Atlanta, Georgia, April 5-7, 1995*. Lawrence, KS: International Life Sciences Institute.
- Blaha, M. J., Bansal, S., Rouf, R., Golden, S. H., Blumenthal, R. S., & Defilippis, A. P. (2008). A practical "ABCDE" approach to the metabolic syndrome. *Mayo Clin Proc*, 83(8), 932-941. doi: 10.4065/83.8.932
- Bucci, L. (1993). *Nutrients as ergogenic aids for sports and exercise*. Boca Raton, FL: CRC Press.
- Buskirk, E. R., & Puhl, S. M. (1996). *Body fluid balance : exercise and sport*. Boca Raton: CRC Press.
- Carrel, A. L. (2012). Randomised trial of exercise dose in children reduces diabetes risk (as measured by insulin resistance) in both 20-min and 40-min doses. *Evid Based Med*. doi: 10.1136/eb-2012-101092
- Colberg, S. R., Sigal, R. J., Fernhall, B., Regensteiner, J. G., Blissmer, B. J., Rubin, R. R., . . . Association, A. D. (2010). Exercise and type 2 diabetes: the American College of Sports Medicine and the American Diabetes Association: joint position statement. *Diabetes Care*, 33(12), e147-167. doi: 10.2337/dc10-9990
- Convertino, V. A., Armstrong, L. E., Coyle, E. F., Mack, G. W., Sawka, M. N., Senay, L. C., & Sherman, W. M. (1996). American College of Sports Medicine position stand. Exercise and fluid replacement. *Med Sci Sports Exerc*, 28(1), i-vii.

- Coyle, E. F. (1995). Substrate utilization during exercise in active people. *Am J Clin Nutr*, 61(4 Suppl), 968S-979S.
- Donnelly, J. E., Blair, S. N., Jakicic, J. M., Manore, M. M., Rankin, J. W., Smith, B. K., & Medicine, A. C. o. S. (2009). American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Med Sci Sports Exerc*, 41(2), 459-471. doi: 10.1249/MSS.0b013e3181949333
- Driskell, J. A. (2000). *Sports nutrition*. Boca Raton, FL: CRC Press.
- Driskell, J. A., & Wolinsky, I. (2000). *Energy-yielding macronutrients and energy metabolism in sports nutrition*. Boca Raton, Fla.: CRC Press.
- Driskell, J. A., & Wolinsky, I. (2006). *Sports nutrition : vitamins and trace elements* (2nd ed.). Boca Raton, FL: Taylor&Francis.
- Jackson, C. G. R. (1995). *Nutrition for the recreational athlete*. Boca Raton: CRC Press.
- Klem, M. L., Wing, R. R., McGuire, M. T., Seagle, H. M., & Hill, J. O. (1997). A descriptive study of individuals successful at long-term maintenance of substantial weight loss. *Am J Clin Nutr*, 66(2), 239-246.
- Kostas, G. G. (2001). *The Cooper clinic solution to the diet revolution : step up to the plate!* Dallas, TX: Balancing Act Nutrition Books.
- Lampman, R. M., & Schteingart, D. E. (1991). Effects of exercise training on glucose control, lipid metabolism, and insulin sensitivity in hypertriglyceridemia and non-insulin dependent diabetes mellitus. *Med Sci Sports Exerc*, 23(6), 703-712.
- Lemon, P. W. (1998). Effects of exercise on dietary protein requirements. *Int J Sport Nutr*, 8(4), 426-447.
- Maughan, R. J., & Murray, R. (2001). *Sports drinks : basic science and practical aspects*. Boca Raton, Fla.: CRC Press.
- Otis, C. L., Drinkwater, B., Johnson, M., Loucks, A., & Wilmore, J. (1997). American College of Sports Medicine position stand. The Female Athlete Triad. *Med Sci Sports Exerc*, 29(5), i-ix.
- Pescatello, L. S., Franklin, B. A., Fagard, R., Farquhar, W. B., Kelley, G. A., Ray, C. A., & Medicine, A. C. o. S. (2004). American College of Sports Medicine position stand. Exercise and hypertension. *Med Sci Sports Exerc*, 36(3), 533-553.
- Rodriguez, N. R., DiMarco, N. M., Langley, S., Association, A. D., Canada, D. o., & Performance, A. C. o. S. M. N. a. A. (2009). Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and athletic performance. *J Am Diet Assoc*, 109(3), 509-527.
- Saltin, B., & Astrand, P. O. (1993). Free fatty acids and exercise. *Am J Clin Nutr*, 57(5 Suppl), 752S-757S; discussion 757S-758S.
- Wolinsky, I. (1998). *Nutrition in exercise and sport* (3rd ed.). Boca Raton: CRC Press.

Randall J. Gretebeck PhD, RD, FACSM

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Faculty Associate, School of Nursing
University of Wisconsin-Madison
Unit II Gym
2000 Observatory Drive
Madison, WI 53706-1121

E-mail: rgretebeck@wisc.edu

EDUCATION:

Baccalaureate: B.S. Dietetics, University of Wisconsin-Madison, 1983.

Graduate: M.S. Exercise Physiology, University of Wisconsin-Madison, 1986.
Ph.D. Exercise Physiology, University of Wisconsin-Madison, 1989.

Postgraduate: University of Illinois, Champaign-Urbana, 1990-1991.
National Aeronautics and Space Administration, Houston, TX, 1991-1995.

PROFESIONAL EXPERIENCE

2012-present	Scientist, University of Wisconsin-Madison, Department of Kinesiology, Madison, WI
2012-present	Faculty Associate, University of Wisconsin-Madison, School of Nursing, Madison WI
2000-2012	Associate Professor, Wayne State University, Division of Kinesiology, Health, and Sports Studies
1995-2000	Assistant Professor, Purdue University, Department of Foods and Nutrition, West Lafayette, IN.
1997-2000	Courtesy Assistant Professor, Purdue University, Department of Health Kinesiology and Leisure Studies, West Lafayette, IN.
1994-1995	Scientist, Universities Space Research Association, Biomedical Operations and Research, NASA-Johnson Space Center, Houston, Texas.

1991-1994	National Research Council Postdoctoral Research Associate, Biomedical Operations and Research, NASA-Johnson Space Center, Houston, Texas.
1989-1991	National Institutes of Health Postdoctoral Fellow, Division of Nutritional Sciences, Department of Kinesiology, University of Illinois at Urbana-Champaign.
1987-1989	Research Assistant, Biodynamics Laboratory, University of Wisconsin-Madison.

PROFESSIONAL SOCIETY MEMBERSHIPS:

1984-current	American College of Sports Medicine (Fellow)
1983-current	American Dietetic Association

HONORS/AWARDS:

1989-1991	National Institutes of Health Post-Doctoral Trainee Award.
1991-1994	National Research Council Post-Doctoral Research Associate Award.
1994	Achievement Award for Spacelab Life Sciences Mission-2, (NASA).
1999	Fellow, American College of Sports Medicine

Extramural Funded Grants

Gretebeck R.J., Principal Investigator. "Weight Loss in Obese African-American Breast Cancer Survivors" National Institutes of Health 1P50ESO12395-0010002. **\$785,715**, 2003-2010. Project #2 of the "Center for Urban African American Health". This center grant includes three support cores and 3 research core projects. **\$6,000,000**, 2003-2010. John Flack, Center principal investigator.

Gretebeck R.J., co-investigator. "Youth Nutrition and Fitness Grant: "SPAI'N" - Students and Parents actively involved 'n being fit", Aramark Service Master/Aramark Gourmet. **\$10,000**. 2003. Linda Jiménez, principal Investigator.

Gretebeck, R.J., consultant. "The effect of fructose on de novo lipogenesis in humans" National Institutes of Health. **\$149,500**. 2000-2002. Katherine Leitch, principal investigator.

Gretebeck, R.J., principal investigator. "Weight loss and de novo lipogenesis". International Life Sciences Institute, **\$40,000**. 1999-2001.

Gretebeck, R.J., co-investigator. "Panel study of aging, BMI and health among men and women". National Institutes of Health, AG 13739, **\$243,446**. 1998-2000. Kenneth F. Ferraro, principal investigator.

Gretebeck, R.J., principal investigator. "Glycemic index of some popular sports drinks and energy foods". Gatorade Sports Science Institute, **\$7,700**. 1998.

Gretebeck, R.J., co-investigator. "Effect of fructose ingestion on de novo Lipogenesis". Diabetes Research Training Center, Indiana University-Purdue University, **\$48,000**. 1996-1998. Katherine Leitch, principal investigator.

Gretebeck, R.J., co-investigator. "Effect of fructose ingestion on de novo Lipogenesis in normal and non-diabetic obese subjects". Bristol-Myers Squibb Company, **\$60,000**. 1996-1998. Katherine Leitch, principal investigator.

Gretebeck, R.J., principal investigator. "Measurement of energy expenditure during space flight using the doubly labeled water (DLW) method". University of Medicine and Dentistry of New Jersey/School of Osteopathic Medicine (Subcontract of NAS9-18775, NASA) **\$41,813**. 1996-1998.

Gretebeck, R.J., co-investigator. "Effects of peanut consumption on hunger, ingestive behavior, energy expenditure and coronary heart disease". United States Agency for International Development, Peanut CRISP. **\$135,915**. 1996-1998. Richard Mattes, principal investigator.

Gretebeck, R.J., principal investigator. "Post exercise carbohydrate metabolism during weight loss". SlimFast Nutrition Institute. **\$88,874**. 1996. Richard Mattes, co-principal investigator.

Gretebeck, R.J., co-investigator. "Evaluation of new body composition techniques in variable gravitational (G) fields". National Aeronautics and Space Administration, Johnson Space Center, Center Directors Discretionary Fund. **\$30,000**. 1993. S.F. Siconolfi, principal investigator.

Gretebeck, R.J., co-investigator. "Changes in muscle protein turnover and fluid balance during head-down bed rest: Effects of oral branched chain amino acids". National Aeronautics and Space Administration Research and Technology Objectives and Planning, **\$469,496**. 1992. H.W. Lane, principal investigator.

Intramural Funded Grants

Gretebeck, R.J., principal investigator. "Development of an objective measure of health related fitness. COE Technology mini grant. 2010. **\$1,579**

Gretebeck, R.J., principal investigator. "Use of electromyography to quantify physical activity" Wayne State University Research Grant Program. 2001. **\$7,000**

Gretebeck, R.J., co-principal investigator. "Assessment of energy expenditure in elderly women by the doubly labeled water method". Biomedical Research Support Grant. **\$4,000**. 1990. R.A. Boileau, co-principal investigator.

Gretebeck, R.J., co-principal investigator. "Body topology by computer vision". University of Illinois Research Board, **\$12,000**, University of Illinois College of Applied Life Studies, \$8,000, And University of Illinois College of Engineering, **\$8,000**. April, 1990. M.H. Slaughter co-principal investigator and K.W. Wong co-principal investigator.

Gretebeck, R.J., co-principal investigator. "Use of doubly labeled water to measure energy expenditure and total body water in the elderly". University of Illinois Research Board, **\$7,000**, and University of Illinois Division of Nutritional Sciences, **\$5,000**. September, 1989. R.A. Boileau, co-principal investigator.

Fellowship/Grants/Special Awards

National Institutes of Health Post-Doctoral Research Award. **\$50,000** (salary support). University of Illinois Champaign-Urbana, 1989-1990.

National Research Council Post-Doctoral Research Award. **\$108,000** (salary support). NASA Johnson Space Center, 1991-1993

PUBLICATIONS

Refereed Journal Articles

Gretebeck, K.A., Radius, K., Black, D.R., Ziemba, R., **Gretebeck, R.J.** & Glickman, L.T. Dog ownership, functional ability and physical activity in community-dwelling older adults. *Journal of Physical Activity and Health*. (In Press)

Karapetian, G., Engels, H., Gretebeck, K.A., **Gretebeck, R.J.** Effect of Caffeine on Lactate Threshold, Ventilatory Threshold and Heart Rate Variability. International Journal of Sports Medicine, 33: 1–7, 2012.

Gretebeck, R.J., Black, D.R., Ferraro, K. Holland, K., Gretebeck, K.A. Longitudinal change in physical activity and disability in adults. American Journal of Health Behavior, 36(3):385-394, 2012.

Karapetian, G., J-Engels, H., **Gretebeck, R.J.** Use of Heart Rate Variability to estimate LT and VT. International Journal of Sports Medicine, 29(8):652-7, 2008.

Hackney, K.J., J-Engels, H., **Gretebeck, R.J.** Resting Energy Expenditure and Delayed Onset Muscle Soreness Following Full-Body Resistance Training with an Eccentric Concentration. Journal of Strength and Conditioning Research, 22(5):1602-1609, 2008.

Brooks, Y., Black, D.R., Coster, D.C., Blue, C.L, Abood, D.A., & **Gretebeck, R.J.** Body mass index and percent body fat as health risk factors for college students. American Journal of Health Behavior, 31(6):687-700, 2007.

Gretebeck, K.A., Black, D.R., Blue, C.L., Glickman, L., Pender N.J., **Gretebeck, R.J.** Physical Activity and Function in Older Adults: Theory of Planned Behavior. American Journal of Health Behavior, 31(2):203-214, 2007.

Yeragani, V.K., Krishnan, S., Engels, H. J. **Gretebeck R.J.** Effects of caffeine on linear and nonlinear measures of heart rate variability before and after exercise. Depression & Anxiety. 21(3):130-4, 2005.

Engels, H.J, **Gretebeck, R.J.**, Gretebeck, K.A., Jimenez, L. Promoting Healthful Diets and Exercise: Efficacy of a 12-Week After-School Program in Urban African Americans. Journal of the American Dietetic Association. 105:455-459, 2005.

Butler, S.M., Black, D.R., Blue, C.L., **Gretebeck, R.J.** Change in Diet, Physical Activity, and Bodyweight Among College Freshmen. American Journal of Health Behavior. 28(1):24-32, 2004.

Williams J.W., Stuart C.A., **Gretebeck R.J.**, Lane H.W., Whitson P.A. Effect of dietary sodium on fluid/electrolyte regulation during bed rest. Aviation, Space, & Environmental Medicine. 74:37-46, 2003.

Gretebeck R.J., Tittelbach T.J., Gretebeck K.A. Glycemic index of popular sport drinks and energy foods. Journal of the American Dietetic Association. 102:415-417, 2002.

Ferraro K.F., Su Y., **Gretebeck R.J.**, Black D.R., Badylak S.F. Body mass index and disability in adulthood: A 20 year panel study. American Journal of Public Health. 92(5):834-840, 2002.

Pahnke L.J., Black D.R., **Gretebeck R.J.** Dietary intake and energy expenditure of female collegiate swimmers during taper. Journal of the American Dietetic Association. 101:351-354, 2001.

Tittelbach T.J., Mattes R.D., **Gretebeck R.J.** Postexercise substrate utilization during energy restriction in the obese: response to a low versus high glycemic meal. Obesity Research. 8:496-505, 2000.

Stein T.P., Leskiw M.J., Schluter M.D., Hoyt R.W., Lane H.W., **Gretebeck R.J.**, LeBlanc A.D. Energy expenditure and balance during space flight on the space shuttle. American Journal of Physiology. 276:R1739-R1748, 1999.

Siconolfi S.F., **Gretebeck R.J.**, Wong W.W., Moore S.S., Gilbert J.H. Determining Bone and total body mineral content from body density and bioelectrical response spectroscopy. Journal of Applied Physiology. 85(4):1578-1582, 1998.

Lane H.W., **Gretebeck R.J.**, Smith S.M. Nutrition, endocrinology and body composition during space flight. Nutrition Research. 18(11):1923-1943, 1998.

Gretebeck R.J., Boileau R.A. Self-reported energy intake and energy expenditure in elderly women. Journal of the American Dietetic Association. 98(5):574-575, 1998.

Gretebeck R.J., Schoeller D.A., Socki R.A., Davis-Street J., Gibson E.K., Schulz L.O., Lane H.W. Adaptation of the doubly labeled water method for subjects consuming isotopically enriched water. Journal of Applied Physiology. 82(2):563-570, 1997.

Siconolfi S.F., **Gretebeck R.J.**, Wong W.W., Pietryk R.A., Suire S.S. Assessing total body and extracellular water from bioelectrical response spectroscopy. Journal of Applied Physiology. 82(2):704-710, 1997.

Lane W.L., **Gretebeck R.J.**, Schoeller D.A., Davis-Street J.E., Socki R.A., Gibson E.K. Comparison of ground-based and space flight energy expenditure and water turnover in middle-aged healthy male US astronauts. American Journal of Clinical Nutrition. 65:4-12, 1997.

Siconolfi S.F., **Gretebeck R.J.**, Wong W.W. Assessing total body protein, and bone mineral content from total body water and body density. Journal of Applied Physiology. 79(5):1837-1843, 1995.

Gretebeck, R.J., Schoeller D.A., Gibson E.K., Lane H.W. Energy expenditure during antiorthostatic bed rest (simulated microgravity). Journal of Applied Physiology. 78(6):2207-2211, 1995.

Gretebeck, R.J., Siconolfi F.S., Rice B., Lane H.W. Physical performance is maintained in women consuming only foods used on the U.S. Space Shuttle. Aviation, Space, & Environmental Medicine. 65(11):1036-40, 1994.

Lane H.W., **Gretebeck R.J.** Metabolic energy required for flight. Advances in Space Research. 14(11):147-155, 1994.

Lane H.W., Rice R., Kloeris V., Frye S., Siconolfi S.F., Spector E., **Gretebeck R.J.** Energy intake, body weight, and lean body mass are maintained in healthy, active women consuming a US Space Shuttle diet. Journal of the American Dietetic Association. 94:87-88, 1994.

Gretebeck, R.J., Montoye H.J. Variability of some objective measures of physical activity. Medicine and Science in Sports and Exercise. 24(10):1167-1172, 1992.

Gretebeck, R.J., Montoye H.J., Ballor D., Montoye A.P. Comment on heart rate recording in field studies. Journal of Sports Medicine and Physical Fitness. 31:629-31, 1991.

Manuscripts Currently Under Review

Gretebeck, K.A., Bailey, T., & **Gretebeck, R.J.** (Under Review). A minimal contact diet and physical activity Intervention in white collar workers

Gretebeck, K.A., Sabatini, L.M., Struble, L., Ronis, D.L., Black, D.R., Blue, C.L. & Gretebeck, R.J. (Under Review). The influence of functional ability, BMI, and gender on physical activity in older adults.

Book Chapters

Gretebeck R.J., Greenleaf J.E. Utility of ground base simulations of weightlessness. In: Nutrition in space flight and weightlessness models. Lane H.W., Schoeller D.A. eds. CRC Press, 1999.

Schoeller D.A., **Gretebeck R.J.** Energy utilization and exercise in space flight. In: Nutrition in space flight and weightlessness models. Lane H.W., Schoeller D.A. eds. CRC Press, 1999.

Lane H.W., Whitson P.E., Putcha L., Baker E., Smith S.M., Stewart K.S., **Gretebeck R.J.**, Nimmagudda R.R., Schoeller D.A., Davis-Street J., Pietrzyk R.A., DeKerlegand D.E., Pak C.Y.C., Bourne D.W.A. Regulatory Physiology. In: Extended Duration Orbiter Medical Project Final Report 1989-1995. NASA/SP, 1999.

Government Publications

Lane, H.W., Gibson E.K., **Gretebeck R.J.** Human energy utilization during space flight determined using doubly labeled water. NASA Technical Memorandum 104789. pp. 1-3, 1994.

Lane, H.W., Gibson E.K., **Gretebeck R.J.**, Socki R.A., Schoeller D.A. A simulated space diet: Effects on energy metabolism and doubly labeled water calculations. Johnson Space Center, Research and Technology Annual Report. NASA Technical Memorandum 104788. 1993.

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Lane, H.W., Frye F., Kloeris V., Rice B., Siconolfi S.F., Spector E., **Gretebeck R.J.** Shuttle-food consumption, body composition and body weight in women. 43rd Congress International Astronautical Federation. 1992.

Lane, H.W., Gibson E.K., **Gretebeck R.J.** Determining human energy utilization during space flight using doubly labeled water. NASA Technical Memorandum 104745. pp. 45-47, 1991.

Abstracts/Papers Published in Conference Proceedings

Gretebeck, R.J. Metabolic fitness: A conceptual model and proposed measurement standard. Conference Proceedings. The Interaction of Physical Activity and Nutrition:Biological Remodeling and Plasticity. December, 2002.

Gretebeck, K.A., Black, D.R., Blue, C.L., Glickman, L., Pender N.J., **Gretebeck, R.J.** Perceived functional ability and physical activity in older adults. Conference Proceedings. ACSM's aging specialty conference: Physical activity programming for the older adult. October, 2000.

Stein T.P., Leskiw M.J., Schluter M.D., **Gretebeck R.J.**, Lane H.W., Hoyt R.W. Measurement of energy balance on four LMS astronauts during space flight. Conference Proceedings. American Society of Gravitational and Space Biology Fourteenth Annual Meeting, pg.61. October, 1998.

Gretebeck R.J., Lane H.W. Nutrition and fluid and electrolyte changes during space flight. Conference Proceedings. 42nd International Congress of Aviation and Space Medicine. Pg S3. New Delhi, India, 1994.

Gretebeck R.J., Davis-Street J., Socki R.A., Frye S., Williams W.J., Whitson P., Gibson E.K., Lane H.W. Total body water measurement during head-down bed rest. Conference Proceedings. Pg 271. Aerospace Medical Association 64th Annual Scientific Meeting, 1993.

Wong, K.W., Ke Y., Slaughter M., **Gretebeck R.J.** A computer vision system for mapping human bodies. XVII Congress of the International Society for Photogrammetry and Remote Sensing, Washington D.C., 1992.

Abstracts Published in Academic Journals

Gretebeck K.A., **Gretebeck R.J.**, A minimal Contact Workplace Intervention Improves Dietary Habits and Physical Activity Medicine & Science in Sports & Exercise. 43(5):953, 2011.

Gretebeck R.J., Gretebeck K.A., Physical Activity, Functional Ability, and Chronic Disease in older adults. Medicine and Science in Sports and Exercise. Medicine & Science in Sports & Exercise. 43(5):827-828, 2011.

Gretebeck K.A., **Gretebeck R.J.**, Dog Ownership and Physical Activity in Older Adults. The Gerontologist, 50(Suppl 1):362, 2010.

Gretebeck R.J., Gretebeck K.A., Co-Morbidities and Perceived Functional Ability in Older Adults. The Gerontologist. 50(Suppl 1):236, 2010.

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Gretebeck, R.J., Karapetian, G.K., Gretebeck K.A., Djuric, Z. Self Efficacy, Physical Activity, And Fitness In Overweight And Obese African American Breast Cancer Survivors. Medicine and Science in Sports and Exercise. 41(5):404-404, 2009.

Karapetian, G.K., **Gretebeck R.J.** Predicting Exercise Training Intensity in Obese African American Breast Cancer Survivors. Medicine and Science in Sports and Exercise. 41(5):409, 2009.

Gretebeck, R.J., Karapetian, G.K. Djuric, Z. Ventilatory Threshold and Heart Rate Variability Response to Progressive Exercise in Older Obese African American Breast Cancer Survivors, The Gerontologist, 47(2), 2007

Brooks, Y., Black, D.R, Coster, D.C., Blue, C.L., Abood, D.A., & **Gretebeck, R.J.** Body mass index & percentage body fat as health indicators for college students. American Journal of Health Behavior, 2007.

Gretebeck, R.J., Karapetian, G.K. Djuric, Z. Lactate and heart rate variability response to progressive exercise in obese African American breast cancer survivors. Medicine and Science in Sports and Exercise. 39(5):S174, 2007.

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Karapetian, G.K., Engels, H.J., **Gretebeck R.J.** Effect of caffeine on lactate threshold and heart rate variability. Medicine and Science in Sports and Exercise. 38(5):S404, 2006.

Hackney, K.J., Engels, H.J., Demers, N.R., **Gretebeck R.J.** Delayed onset muscle soreness and resting metabolic rate following full-body resistance exercise with an eccentric concentration. Medicine and Science in Sports and Exercise. 38(5):S464, 2006.

Siconolfi, S.F., **Gretebeck, R.J.** Estimating true bone density (G/CC) from DXA, water and body density. Medicine and Science in Sports and Exercise. 36(5):S69-70, 2004.

Engels H.J., **Gretebeck, R.J.**, Jimenez, L., Gretebeck, K.A. Effects of a physical fitness and healthy nutrition promotion after-school program in urban African American children. Medicine and Science in Sports and Exercise. 36(5):S145, 2004.

Gretebeck, R.J., Latendresse-Sutton, J., Karapetian, G.K., Engels, H.J. Use of heart rate variability to estimate lactate threshold. Medicine and Science in Sports and Exercise. 36(5):S42, 2004

Butler, S.M., Black, D.R., Blue, C.L., **Gretebeck, R.J.** Peer advocates as a recruitment tool to a weight management investigation on a college campus. American Journal of Health Behavior. 2004.

Gretebeck, K.A., **Gretebeck R.J.** Predicting physical activity behaviors in different age groups of older adults. Medicine and Science in Sports and Exercise, 35(5):S74, 2003.

Gretebeck, R.J., Kappes, R.E., Kulinna, P.H. Sports participation and lifestyle behaviors in adolescents. Medicine and Science in Sports and Exercise, 34(5):S235, 2002.

Kappes, R.E., Kulinna, P.H., **Gretebeck, R.J.** Racial differences in BMI versus body composition in adolescents. Medicine and Science in Sports and Exercise, 34(5): S28, 2002.

Kulinna, P.H., Martin, J.J., **Gretebeck, R.J.**, Regualos R. Determinants of teachers' intentions and behaviors related to teaching physically active classes. Research Quarterly for Exercise and Sport, 73, A-73, 2002

Butler, S.M., Black, D.R., Blue, C.L., **Gretebeck, R.J.** Environmental effects on weight, body fat, nutrition, and exercise. American Journal of Health Behavior, 2002.

Gretebeck, K.A., Algase D.L. Pender N.J., **Gretebeck, R.J.** Predicting physical activity behavior in older men and women. The Gerontologist, 41(1):295, 2001.

Gretebeck, R.J., Black, D.R., Boileau, R.A. Sensitivity and specificity of NHLBI body mass index guidelines for overweight and obesity. FASEB J., 15(4): A614, 2001.

Leitch C.A., Story J.A., **Gretebeck R.J.** De novo cholesterol synthesis in lean and obese subjects. FASEB J., 15(4): A640, 2001.

Kappes R., **Gretebeck R.J.** Effects of exercise on the glycemic response to glucose and fructose. Medicine and Science in Sports and Exercise, 33(5): S154, 2001.

Gretebeck, R.J., Black, D.R., Ferraro K.F., Holland K.B., Gretebeck K.A. Longitudinal change in physical activity and disability in adults. Medicine and Science in Sports and Exercise, 33(5): S292, 2001.

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Leitch C.A., Story J.A., **Gretebeck R.J.** De novo cholesterol synthesis in response to glucose vs. fructose. FASEB J. 14(4): A249, 2000.

Siconolfi S.F., **Gretebeck R.J.** Use of body surface area to estimate body volume in epidemiologic studies: A proof of concept. Medicine and Science in Sports and Exercise, 31(5): S403, 1999.

Stein T.P., Leskiw M.J., Schluter M.D., **Gretebeck R.J.**, Lane H.W., Hoyt R.W., Leblanc A.D. Energy balance during space flight on the shuttle. FASEB J. 13(5): A929, 1999.

Gretebeck R.J., McDaniel C., Ji L.L., Belury M. A. PPAR-responsive gene expression in liver and muscle of exercise trained rats. FASEB J. 13(4): A418, 1999.

Tittelbach T.J., Lerner C.M., Mattes R.D., **Gretebeck R.J.** Post-exercise substrate utilization during energy restriction in the obese: Response to low glycemic versus high glycemic liquid meals. FASEB J. 13(4): A928, 1999.

Wright K., Leitch C.A., Story J.A., **Gretebeck R.J.** Consumption of a high fructose diet for five days increases plasma triglycerides. FASEB J. 13(5): A902, 1999.

Leitch C.A., Wright K., Story J., **Gretebeck R.J.** De novo triglyceride synthesis in response to glucose vs. fructose. FASEB J. 13(5): A901, 1999.

Tittelbach T.J., Lerner C.M., Mattes R.D., Jackman L.A., **Gretebeck R.J.** Post exercise substrate utilization during energy restriction: response to glucose versus fructose. FASEB J. 12(4): A542, 1998

Smeltzer K.D., **Gretebeck R.J.** Effect of Radix Acanthopanax senticosus on submaximal running performance. Medicine and Science in Sports and Exercise. 30(5): S278, 1998.

Jackman L.A., Mosely C.J., Cherian A.M., Gretebeck K.A., Tittelbach T.J., **Gretebeck R.J.** Glycemic index of some popular sports drinks. Medicine and Science in Sports and Exercise. 30(5): S156, 1998.

Gretebeck R.J., Smith S.M., Waligora J.M., Lane H.W. Energy expenditure during space flight extravehicular activity (EVA). FASEB J. 11(3): A372, 1997.

Davis-Street J.E., Lane H.W., Ferrando A.A., **Gretebeck R.J.**, Smith S.M. Electrode placement for BIA determination of fat free mass during bed rest. FASEB J. 11(3): A591, 1997.

Gretebeck R.J., Schoeller D.A., Davis-Street J.E., Socki R.A., Gibson E.K., Lane H.W. Use of the deuterium oxide method for measuring water intake during space flight. FASEB J. 10(3): A1147, 1996.

Gilbert J.H., Suire S.S., **Gretebeck R.J.**, Wong W.W., Siconolfi S.F. Effect of frequency, circuit analysis & instrument on extracellular & total body resistance. Medicine and Science in Sports and Exercise 27(5): S672, 1995.

Siconolfi S.F., **Gretebeck R.J.**, Suire S.S., Wong W.W. Validity of using body density & 3 estimates of body water to assess fat, fat free mass, mineral, and protein from 3-compartment (C) models. Medicine and Science in Sports and Exercise 27(5): S196, 1995.

Siconolfi S.F., **Gretebeck R.J.** The effects of body fluid shifts on single and multi-frequency bioelectrical analyses. Medicine and Science in Sports and Exercise 26(5): S202, 1994.

Gretebeck R.J., Schoeller D.A., Davis-Street J., Shulz L.O., Socki R.A., Gibson E.K., Lane H.W. Background correction techniques for doubly labeled water when drinking isotopically enriched (Space Shuttle) water. FASEB J. 8: A725, 1994.

Gretebeck R.J., Socki R.A., Davis-Street J., Schoeller D., Gibson E.K., Lane H.W. Energy utilization during space flight: Doubly labeled water measurements. FASEB J. 7:A840, 1993.

Gretebeck, R.J., Davis-Street J., Schoeller D.A., Lane H.W. Energy regulation during ten days of simulated microgravity. FASEB J. 6: A1117, 1992.

Gretebeck, R.J., Weisel S., Boileau R. Assessment of energy expenditure in active older women using doubly labeled water and Caltrac recordings. Medicine and Science in Sports and Exercise 24(5): S68, 1992.

Gretebeck, R.J., Montoye H.J., Porter W. Use of doubly labeled water to measure energy expenditure in an epidemiological setting. FASEB J. 5: A1647, 1991.

Gretebeck, R.J., Montoye H.J., Porter W. Comparison of the doubly labeled water method for measuring energy expenditure with Caltrac accelerometer recordings. Medicine and Science in Sports and Exercise 23(4): S60, 1991.

Gretebeck, R.J., Montoye H.J. A comparison of six physical activity questionnaires with Caltrac accelerometer recordings. Medicine and Science in Sports and Exercise 22(2): S79, 1990.

Gretebeck, R.J., Montoye H.J. Reproducibility of objective methods for measuring physical activity. Medicine and Science in Sports and Exercise 21(2): S112, 1989.

Invited Research Presentations

Gretebeck, R.J., (2012). Measuring Metabolic Fitness. Research Seminar, University of Wisconsin

Gretebeck, R.J., (2012). Measuring energy intake and expenditure. Research Seminar, University of Michigan

Gretebeck, R.J., (2010). Research designs for physical activity. Research Seminar, University of Michigan

Gretebeck, R.J. (2007). Physical activity assessment. Research Seminar, University of Michigan

Gretebeck, R.J. (2006). The lactate response to exercise and metabolic fitness. Research Seminar, Wayne State University Medical School.

Gretebeck, R.J. (2006). Diet, Exercise, and Insulin Resistance. Endocrinology Research Seminar, Wayne State University Medical School.

Gretebeck, R.J. (2006). Lactate response to exercise: Links with insulin resistance. Nutritional Sciences Research Seminar. Wayne State University Nutritional Sciences Department.

Gretebeck, R.J. (2002). A conceptual model of health related fitness linking diet, exercise, and insulin resistance. Endocrinology Grand Rounds,

Gretebeck, R.J., Siconolfi S.F. (2001) Body composition and health. Endocrinology Grand Rounds, Wayne State University Medical School.

Gretebeck, R.J. (2000). Energy and macronutrient metabolism. Rice University, Houtson, Texas

Gretebeck, R.J. (1999). Energy balance and macronutrient metabolism: Role of diet and exercise. Michigan State University, Michigan.

Gretebeck, R.J. (1998). Energy expenditure and self reported energy intake. Indiana Dietetic Association, Fall Meeting Evansville, IN.

Gretebeck, R.J. (1998). Accuracy and variability of energy intake assessment. University of Kansas, Lawrence, KS.

Gretebeck, R.J. (1995). State of knowledge of space nutrition: Energy studies. NASA Nutrition Advisory Committee, 1995 Nutrition Workshop-Nutritional Requirements for Extended Duration Space Flight. NASA Johnson Space Center, Houston, TX.

TEACHING

Courses taught at University of Wisconsin-Madison Department of Kinesiology

Kines 508 Nutrition for Exercise and Health (2012)

Kines 314 Exercise Physiology (2012)

Courses taught at Wayne State University Division of Kinesiology, Health, and Sports Studies

Graduate

KIN 6310 (3cr) Physiology of Exercise II (2002-2011)

KHS 7500 (4cr) Research Methods in Kinesiology Health and Sports Studies (2006-2012)

KIN 6320 (3cr) Exercise Assessment and prescription (2011)

Undergraduate

KIN 2010 (3cr) Psychophysiological Foundations of Physical Activity and Health (2011-2012)

PE 3570 (3cr) Physiology: Exercise I (2001)

STUDENT ADVISEMENT/RESEARCH MENTORSHIP

Students by Name, Level, Title of Project, Year

Kappes, R.E. Masters. Relationship between physical activity, sports participation, and weight in African and Caucasian adolescents, 2002. Advisor.

Letendress, J. Masters. Heart rate variability and lactate threshold, 2003. Advisor.

Hackney, K.H. Masters. Delayed onset muscle soreness and resting metabolic rate following full-body resistance exercise with an eccentric concentration, 2005. Advisor.

Ferraro, N. Masters. Nutritional Intake and Fitness Levels of High School Cheerleaders, 2005. Advisor.

Karapetian, G. PhD. Heart rate variability as a non-invasive biomarker of sympathovagal interaction and determinant of physiologic thresholds, 2008. Dissertation Chair.

Coutsos, M. PhD. Muscle metaboreflex control of coronary blood flow and ventricular contractility during dynamic exercise in normal and heart failure conditions, (Committee Member) 2010.

Deepinder, K. PhD. Effects of dietary fat saturation on lipoprotein metabolism in rodents and humans, (Committee Member) 2010.

Rueda, J. PhD. Development of interventions aimed at reducing obesity and cardiovascular disease risk in a diverse population of college age young adults, (Committee Member) 2011.

SERVICE

Administrative Appointments at Wayne State University

Kinesiology Health and Sports Studies Graduate Program Coordinator (2005-2012)
Exercise Science Program Coordinator (2011-2012)

Administrative Appointments at Other Colleges/Universities

Director, Nutrition, Fitness & Health Major, Department of Foods and Nutrition, Purdue University, West Lafayette, IN (1995-2000).

Committee Assignments

Athletic facility, sports arena long-term planning committee (2003)
Faculty Senate (2006-2007, 2011)
Search Committee, Sports Administration position (2006)

Search Committee, (2001-2009).

National Council for Accreditation of Teacher Education, Standard V, Faculty Qualifications, Performance and development Committee, (2002-2003).

Executive Committee, (2004-2005)

Consulting to Public Agencies, Foundations, Professional Associations

Review and Assessment of Nominees for the Canada Research Chairs Program (2008).

Grant reviewer for U.S. Army Medical Research and Material Command (1997).

Grant reviewer for National Institutes of Health (NIH), Center for Scientific Review, Epidemiology and Disease Control-2 Health Promotion/Disease Prevention (1999).

Grant reviewer for Nebraska Department of Health and Human Services, Nebraska Cancer and Smoking Disease Research Program (1999).

Reviewer for Journals

American Journal of Clinical Nutrition

Nutrition Research

Journal of the American Dietetic Association

Medicine and Science in Sports and Exercise

Journal of Applied Physiology

American Journal of Physiology: Endocrinology & Metabolism

IEEE Transactions on Biomedical Engineering

Journal of Women's Health

Pediatrics

Reviewer for Text Book Publisher

Wadsworth Publishing Company