

Agenda

CALS Curriculum Committee Meeting
Tuesday, April 22, 2014, 12:00 p.m.
250 Agricultural Hall

___ Randy Jackson, Chr (2014)

___ Jeri Barak, (2014)

___ Bill Bland, (2014)

___ Laura Jull

___ Jack Kloppenburg, (2015)

___ 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

March 25, 2014

INDIVIDUALIZED MAJOR

Quincy Markowitz—Animal Welfare

Lead: all

COURSE PROPOSALS

Biochemistry 104: *Molecular Mechanisms, Human Health & You*

Lead: Bill

New Course, effective Fall 2014. Course covering fundamentals of genetics and evolution as they relate to issues in public health and epidemiology.

Biology 599: *Capstone in Biology*

Lead: Bill

New Course, effective Fall 2014. Independent study course to be used to satisfy Biology Capstone requirement.

L Sc Com 477: *NAMA Project: Agri-Marketing Strategy and Implementation*

Lead: Jeri

New Course, effective Spring 2015. Course in which students develop a full-scale marketing campaign.

Land Arch 634: *Geodesign Capstone*

Lead: Jack

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: Phil

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.

The following proposals are grouped together due to the fact that they are all waiting on supplemental approval from Geography. There has been contention between Geography and several CALS departments. Phil would like to propose a discussion about how we should handle this situation with regard to course proposals, or if it is even our situation to handle.

F &W Ecol 660: *Climate Change Ecology*

Lead: Jeri

New Course, effective Fall 2014. Course using class discussions, online climate exercises, and group projects to introduce students to climate change and its ecological impacts. **Waiting on approval from Geography.**

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". **Waiting on approval from C&E Soc, Geography.**

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. **Waiting on approval from Geography.**

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. **Waiting on approval from F &W Ecol, Geography.**

**CALS Curriculum Committee Meeting
March 25, 2014**

Present: Jackson, Bland, Van Eyck, Barak, Olson, Gonsiska, Gisler, Sottile

Absent: Smith, Fritsch, Steele, Day, Jull

Meeting start time: 12:05pm

MINUTES

- Motion to approve minutes from Feb. 25: Kloppenburg, Olson – passed

COURSE PROPOSALS

- Agronomy 771 “Experimental Designs”
 - Change in pre-requisites to drop Stats 572 as a pre-req
- Agronomy 772 “Applications in ANOVA”
 - Change in pre-requisites to drop Stats 572 as a pre-req
 - Motion to approve both 771 and 772: Barak, Bland – passed
- Biochemistry 917 “Regulation of Gene Expression (Advanced Seminar)”
 - Currently taught as a non-credit course; want to formalize the course and offer as a 1 credit class.
 - Motion to approve: Kloppenburg, Olson – passed
 - Discussion:
 - What’s the breaking point for an “S” or “U” grading? Suggest the instructor includes clarification in the syllabus and clarifies what qualifies as “participation.”
- Chemistry 626 “Genomic Science”
 - Course change. Add a cross-listing with Genetics. Also changed the description. The cross-listing and description will make the course more visible and accessible to students outside of Chemistry and clarify what the course is about.
 - Motion to approve: Bland, Van Eyck – passed
- Horticulture 234 “Ornamental Plants”
 - New course in response to constraints on teaching capacity. Class will replace 232 (2 cr.) and 233 (2 cr.); course material from those courses will be condensed and taught in 234 (3 cr.) during Fall semester.
 - Motion to approve: Olson, Bland – passed
- Horticulture 232 “Herbaceous Ornamental Plants I”
 - Discontinue course
- Horticulture 233 “Herbaceous Ornamental Plants II”
 - Discontinue course
 - Motion to approve both 232 and 233: Bland, Kloppenburg – passed

- Journalism and Mass Communication 601 “Undergraduate Colloquium in Professional Communication Careers”
 - New course out of L&S. CALS is included because of LSC. Course gives students a “buffet” exposure to the types of jobs available to them with their degree. LSC signature is supplemental, but not required. LSC has signed off on the course. There is not a grading scale in the syllabus.
 - Motion to provide supplemental approval: Van Eyck, Bland – passed
- Kinesiology 525 “Nutrition in Physical Activity and Health”
 - New course. To be cross-listed with Nutritional Sciences. Fills a gap that currently exists regarding nutrition being linked to exercise. Pre-requisite to be accepted into the Kinesiology program. Inconsistency with course pre-reqs between course proposal and syllabus.
 - Motion to approve: Bland, Van Eyck – passed
 - Discussion:
 - Suggest instructor includes a grading scale in syllabus and be consistent with course pre-reqs
- Gen Bus 310
 - Change pre-req from Junior or Senior standing to Sophomore standing. Course was created by the Business School for CALS students. CALS is supplemental support only.
 - Motion to support the course change: Bland, Van Eyck – passed

Meeting adjourned 12:43pm



15 April 2014

Prof. Randy Jackson, CALS Curriculum Committee Chair
Dr. Phil Gonsiska, Assistant Dean for Academic Programs and Policies
<sent via email>

Attached please find a request from Quincy Markowitz for permission to pursue an Individualized Major in Animal Welfare. To supplement her request, I am also providing the CALS policy on individual majors, as well as a mock-up of the DARS report for this proposed program. Ms. Markowitz, Prof. Fadl, and I all plan to attend the CALS Curriculum Committee meeting on 22 April 2014 to present this request and respond to any questions the committee might have.

Sincerely,

Sarah K.A. Pfatteicher, Ph.D.
Associate Dean for Academic Affairs
College of Agricultural & Life Sciences
Research Professor, Civil & Environmental Engineering
College of Engineering

Cc: Quincy Markowitz
Prof. Amin Fadl
Prof. Anna Pidgeon
Prof. Rob Streiffer

Office of Academic Affairs

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College of Agricultural and Life Sciences

Individual Major

The individual major is a flexible program for undergraduates who want to attain a specific academic goal that is not easily attained through a major in one or more departments. The major must involve courses from several departments, must be at least as rigorous as a regular departmental major, and must be targeted at a special intellectual problem or academic need identified by the student.

The individual major is available in the Bachelor of Science degree program.

The student selects a three-person faculty committee from departments offering courses in the proposed major. The major advisor is from a CALS department that offers many of the courses in the proposed individual major. No more than two members of the committee can be from a single department. The student must submit a proposed plan of study to the committee for review and approval. The faculty committee must consult with the department with the most courses in the proposed major. The plan should include: the title of the proposed major; the rationale for the major; the list of courses and the reasons for including each course in the major; and the applicability of the proposed major to the student's future goals or plans. The student is required to earn at least 30 credits after the term in which the proposal is approved.

If the faculty committee approves the plan, the student submits it to the CALS Curriculum Committee along with a letter of support from the major advisor and a summary of the department discussion of the plan. The faculty advisor and student will meet with the Curriculum Committee to present the proposal. The Curriculum Committee may approve the proposal, reject the proposal, or ask for further clarification and resubmission. The decision of the Curriculum Committee is final. Any changes in the major must be approved by the faculty advisor and reported to the Office of Undergraduate Programs and Services, and any changes that significantly affect the nature or rigor of the program must be approved by the Curriculum Committee.

The transcript will indicate "Individual Major" until the degree is awarded. It will then show the exact name of the approved "individual major."

I came to the UW in the fall of 2013, after a few years of figuring out what I wanted through varied classes at MATC. My love of animals showed me that working with them for the rest of my life was something I needed, and a degree to help me do that was ideal. Settling on CALS and Animal Sciences was a difficult choice over Zoology, but it inevitably seemed like the best idea both because of the reputation of the college and the hands on experience I would get.

My first semester was easily navigated, but I did choose to opt out of some Animal Science labs and do make-up work instead. While I can partake in some aspects of the hands-on experience that drew me to the program in the first place, it became apparent that I was in over my head. I was no longer able to set my personal convictions aside and found, in particular, the production aspect of my meat science course to be causing me more anxiety than I thought.

For the last two and a half years, I have been involved with (and work at) Heartland Farm Sanctuary, a forever home for abused and neglected farm animals. I am also a vegetarian and volunteer with three other animal organizations. I strive to help as many animals as I can have happy and healthy lives.

After talking with some faculty, two deans, and the department head, it became abundantly clear that I was not the right student for the Animal Science major. With a strong foundation in the sciences, I want to pursue my BS in an area that is much better suited for me: Animal Welfare.

I believe I would benefit more greatly from this chosen major than any currently offered at the university. It not only aligns with my beliefs, but would help me in my current job or a future job I would hope to get. The education will be valuable as I will still be learning (and have learned) many aspects of animal biology, but be taking courses to also help me understand ethical debates.

I also believe that animal welfare is an ever increasing social standard and interest, and to be among the first students to major in something of this nature at the university could help set a path for the inevitable others who may have similar interests.

Quincy Markowitz
ID# 9070172920
April 14, 2014

Proposed Curriculum for an Individual Major in CALS in Animal Welfare

Submitted by Quincy Markowitz

April 14, 2014

Advisors:

- Amin Fadl, Animal Sciences (major advisor)
- Anna Pidgeon, Forest and Wildlife Ecology
- Robert Streiffer, Philosophy

A strong science foundation is already complete including:

- Physics 103
- Chemistry 103, 104, 343
- Genetics 160
- Zoology 101, 102
- Botany 130
- Math up to 217
- Animal Science 375, two courses

The remainder of the curriculum for the proposed major includes a mix of three areas – Animal Science, Forest and Wildlife Ecology, and Philosophy/Ethics – plus a capstone, as described below:

1. Animal Science courses- focused on the biology and welfare of individual animals.

Four courses, 10-12 credits:

- Animal Science 101- Livestock Production, 4 credits (completed)
- Animal Science 200- Biology and Appreciation of Companion Animals, 3 credits
- Animal Science 320- Animal Disease and Health Management, 3 credits (in progress)
- Animal Science 375- Assessing Animal Welfare, 1 credit

2. Forest and Wildlife Ecology- focused on the welfare of the environment and the animals in it.

Two courses, 6-7 credits:

- Forest and Wildlife Ecology 318- Principles of Wildlife Ecology, 3 credits OR Forest and Wildlife Ecology 460- General Ecology, 4 credits.
- Forest and Wildlife Ecology 360- Extinction of Species, 3 credits.

3. Philosophy/Ethics- focused on developing a basic understanding of ethical principles.

Two courses, 6-8 credits.

- Philosophy 241- Introductory Ethics, 4 credits.
- Philosophy 341- Contemporary Moral Issues, 4 credits OR 520 Philosophy of the Natural Sciences OR Comparable animal-focused philosophy class.

4. Capstone Requirement

- An Sci 699 Independent study with Professor Fadl

Proposed Schedule:

I am registered for the following Fall 2014 classes:

- An Sci 200- Biology and Appreciation of Companion Animals, 3 credits.
- An Sci 375- Assessing Animal Welfare, 1 credit.
- F&W Ecology 318- Principles of Wildlife Ecology, 3 credits.
- F&W Ecology 360- Extinction of Species, 3 credits.
- Philosophy 241- Introductory Ethics, 4 credits.
- An internship at Heartland Farm Sanctuary/Independent Study with Professor Fadl, 2 credits
- **Total: 16 credits**

Spring 2015:

- Philosophy 341 Contemporary Moral Issues or 520 Philosophy of the Natural Sciences- 3 or 4 credits
- An Sci/Zoology 520 or 521 Ornithology, 3 credits
- An Sci/Zoology 335 Human and Animal Relationships, 3 credits
- 2-3 credits, elective
- An Sci 699- Capstone/Independent Study with Professor Fadl, 2 credits.
- **Total: 14 credits**

| ----- COLUMN 1 ----- | | | | | ----- COLUMN 2 ----- | | | | |
|---|--|--|--|--|--|--------|-----|------|------------------------------|
| CL/YR: ALS 4 | | | | | **** COURSES IN PROGRESS **** | | | | |
| MAJOR: 08/26/13 065 Animal Sci | | | | | The following "in progress" courses have been used in this DARS audit: | | | | |
| ADVISORS: Berres, Mark Eric | | | | | IN-PROGRESS 26.0 CREDITS | | | | |
| HS UNITS: | | | | | SP14 AN SCI | 320 | 3.0 | INP | Animal Health & Disease Mgt |
| LANG: 0.0 | | | | | SP14 AN SCI | 375003 | 1.0 | IN>R | Exploring Poultry |
| MATH: ALG 1.0 GEO 1.0 ADV 0.2 | | | | | SP14 BOTANY | 130 | 5.0 | INP | General Botany |
| SCIENCE: | | | | | SP14 CHEM | 343002 | 3.0 | INP | Intro Organic Chemistry |
| SOC STUD: | | | | | FA14 AN SCI | 200 | 3.0 | INP | Biol&Apprec-Compani on Anmls |
| ADVANCED STANDING CREDITS | | | | | FA14 AN SCI | 375001 | 1.0 | IN>R | Assessing Animal Welfare |
| DATE TYPE DEG CRSE | | | | | FA14 F&W ECOL318 | | 3.0 | INP | Principles-Wildlife Ecology |
| 08/26/13 TRAN 72 82 | | | | | FA14 F&W ECOL360 | | 3.0 | INP | Extinction of Species |
| **TOTALS** | | | | | FA14 PHILOS | 241 | 4.0 | INP | Introductory Ethics |
| Admit type: TRF | | | | | ----- | | | | |
| -----> AT LEAST ONE REQUIREMENT HAS NOT BEEN SATISFIED <----- | | | | | ****UNIVERSITY REQUIREMENTS**** | | | | |
| NO COLLEGE OF AGRICULTURAL & LIFE SCIENCES GRADUATION ELIGIBILITY REQUIREMENTS | | | | | Courses may not double count within university requirements (General Education, Ethnic Studies, Humanities, & Social Science) but courses counted toward university requirements may also be used to satisfy a college requirement &/or a major requirement. | | | | |
| If you intend to graduate this semester, you must complete the "Apply for Graduation" section in your Student Center. | | | | | ----- | | | | |
| IP- Must complete a minimum of 120 credits. | | | | | OK GENERAL EDUCATION REQUIREMENTS | | | | |
| Please be aware that limits exist for certain types of courses, including: | | | | | All students except those who matriculated at a college or university before May 20, 1996, must satisfy the university-wide General Education Requirements. | | | | |
| ***no more than 8 TOTAL CREDITS of 399 (internship) | | | | | Students who believe they are exempt from this requirement should contact the Office of Undergraduate Programs & Services in 116 Agricultural Hall. | | | | |
| ***no more than 1 ELECTIVE COURSE taken Pass/Fail per semester | | | | | + 1) Must complete 1 Communication A course, designated "a" in the Course Guide. | | | | |
| ***no more than 8 TOTAL COURSES taken Pass/Fail | | | | | FA09 ENGLISH X04 3.0 T English 1 | | | | |
| ***no more than 1 CREDIT of PE ACTIV per semester | | | | | + 2) Must complete 1 Communication B course, designated "b" in the Course Guide. | | | | |
| ***no more than 8 TOTAL CREDITS of PE ACTIV | | | | | SP10 ENGLISH X13 3.0 T English 2 | | | | |
| For more detail, see http://pubs.wisc.edu/ug/cals_regs . | | | | | + 3) Must complete 1 Quantitative Reasoning A course, designated "q" in the Course Guide. | | | | |
| (112.0 CREDITS TAKEN) | | | | | SP13 MATH 112 3.0 T Algebra | | | | |
| NEEDS: 8.0 CREDITS | | | | | + 4) Must complete 1 Quantitative Reasoning B course, designated "r" in the Course Guide. | | | | |
| IP+ Must earn a cumulative GPA of 2.0 or higher. | | | | | SP13 PHYSICS 103 5.0 T General Physics | | | | |
| 14.0 GPA CRED. EARNED 40.0 POINTS 2.857 GPA | | | | | ----- | | | | |
| IP+ Must complete last 30 credits "in residence." | | | | | OK ETHNIC STUDIES, HUMANITIES, & SOCIAL SCIENCE REQUIREMENT | | | | |
| That is, must have a CALS undergraduate classification while earning the last 30 credits for the degree. | | | | | + 1) Must complete 3 credits of Ethnic Studies course(s), designated "e" in the Course Guide. | | | | |
| For more information, see http://pubs.wisc.edu/ug/cals_regs.htm#graduationissues | | | | | SP06 ANTHRO 104 3.0 T Cult Anthro&Human Diversity | | | | |
| Consult a Dean on Call in 116 Agricultural Hall regarding possible exceptions to this policy. | | | | | ***** CONTINUED ON COLUMN 3 PAGE 2 ***** | | | | |
| ***Please note the credit count in DARS will not be accurate prior to enrollment in CALS. | | | | | ***** CONTINUED ON COLUMN 3 PAGE 2 ***** | | | | |
| 14.0 CREDITS ADDED | | | | | | | | | |
| IN-P ---> 26.0 CREDITS | | | | | | | | | |
| ***** CONTINUED ON COLUMN 2 PAGE 1 ***** | | | | | | | | | |

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|---|------------------------------------|---|------------------------------------|
| ----- COLUMN 3 ----- | | ----- COLUMN 4 ----- | |
| + 2) Must complete 6 credits of Humanities courses, designated H, L, X, or Z in the Course Guide. | | + 3) ADDITIONAL SCIENCE REQUIREMENT Must complete 3 credits of Biological, Physical, or Natural Science course(s), designated B, P, N, W, X, Y in the Course Guide. | |
| SP10 COM ARTS350 | 3.0 T Introduction to Film | FA11 ASTRON 100 | 5.0 T Survey of Astronomy |
| SP10 MUSIC X23 | 3.0 T Hist Pop/Rock Music | | |
| + 3) Must complete 3 credits of Social Science course(s), designated S, W, Y, or Z in the Course Guide. | | + 4) SCIENCE BREADTH REQUIREMENT Must complete 3 credits of additional science course(s) Biological, Physical, Natural, or Social, designated B, P, N, S, W, X, Y or Z in the Course Guide | |
| SPO6 PSYCH 160 | 3.0 T Hum Sexuality-Soc, Psych Iss | SPO6 PSYCH 160 | 3.0 T Hum Sexuality-Soc, Psych Iss |
| *****COLLEGE REQUIREMENTS***** | | *****MAJOR REQUIREMENTS***** | |
| Courses may not double count within college requirements (First-Year Seminar, International Studies, & Science), but courses counted toward college requirements may also be used to satisfy a university requirement &/or a major requirement. | | Courses may not double count within the major (unless specifically noted otherwise), but courses counted toward the major requirements may also be used to satisfy a university requirement &/or a college requirement. A minimum of 15 credits must be completed in the major that are not used to satisfy requirements elsewhere. | |
| OK FIRST-YEAR SEMINAR REQUIREMENT | | *****INDIVIDUAL MAJOR***** | |
| + 1) Student admitted as transfer. First-Year Seminar Requirement waived. | | This DARS report is for students who have been approved for an Individual Major in CALS. | |
| OK INTERNATIONAL STUDIES REQUIREMENT | | Each approved curriculum will appear below as a separate set of requirements. If multiple curricula appear, you will only be expected to follow the one for which you have been approved. | |
| + 1) Must complete 3 credits of International Studies coursework from list approved by the College. See Curriculum Information link at: go.wisc.edu/64gyox | | NO INDIVIDUAL MAJOR IN ANIMAL WELFARE | |
| SPO6 ANTHRO 104 | 3.0 T Cult Anthro&Human Diversity | IP- 1) Must complete major coursework as approved by CALS Curriculum Committee. | |
| OK CHEMISTRY, BIOLOGICAL SCIENCE, ADDITIONAL SCIENCE, & SCIENCE BREADTH REQUIREMENT | | FA13 AN SCI 101 4.0 A Livestock Production | |
| + 1) CHEMISTRY REQUIREMENT (aka PHYSICAL SCIENCE FUNDAMENTALS REQUIREMENT) Must complete one General Chemistry course. Consult major requirements prior to selecting. (Chem 108 is not appropriate for some majors.) May satisfy via AP or transfer credit or via placement. | | SP14 AN SCI 320 3.0 INP Animal Health & Disease Mgt | |
| SP13 CHEM 103 | 5.0 T General Chemistry | FA14 AN SCI 200 3.0 INP Biol&Apprec-Companion Anmls | |
| + 2) BIOLOGICAL SCIENCE REQUIREMENT Must complete 5 credits of Biological Science course(s) designated B in the Course Guide. | | FA14 AN SCI 375001 1.0 IN>R Assessing Animal Welfare | |
| SP11 MICROBIOX17 | 4.0 T Microbiology | FA14 F&W ECOL318 3.0 INP Principles-Wildlife Ecology | |
| FA12 ZOOLOGY 101 | 3.0 T Animal Biology | FA14 F&W ECOL360 3.0 INP Extinction of Species | |
| | | FA14 PHILOS 241 4.0 INP Introductory Ethics | |
| | | NEEDS: 1 COURSE | |
| | | SELECT FROM: PHILOS 341 OR 520 | |
| ***** CONTINUED ON COLUMN 4 PAGE 2 ***** | | ***** CONTINUED ON COLUMN 5 PAGE 3 ***** | |

| | | | |
|---|--|---|--|
| ----- COLUMN 5 ----- | | ----- COLUMN 6 ----- | |
| - 2) Must complete 1 Capstone Course: AN SCI 699 with Prof. Amin Fadl | | (R) = required course (X) = original course value | |
| Course must meet CALS Capstone Characteristics described in the Undergraduate Catalog. | | ** GRADE SYMBOLS ** | |
| NEEDS: 1 COURSE SELECT FROM: AN SCI 699 | | EIP = extended incomplete HS = high school unit INP = in-progress course (current term) IP = incomplete PL = planned course PP = progress PS = mock/pseudo course T = transfer/test/advanced standing course | |
| ----- NO OR INDIVIDUAL MAJOR IN BIOINFORMATICS --> NEEDS: 15.0 CREDITS | | ** REQUIREMENT/SUB-REQUIREMENT INFORMATION ** | |
| - 1) Must complete major coursework as approved by CALS Curriculum Committee. | | OK = requirement complete NO = requirement not complete IP = requirement uses in-progress credit/courses IN-P = sub-requirement uses in progress credit/courses PL = requirement/sub-requirement uses planned course R = required sub-requirement (mandatory) <> = optional/other requirement in OR'd set complete + = sub-requirement complete - = sub-requirement not complete * = optional sub-requirement, courses assigned = optional sub-requirement, no courses assigned | |
| NEEDS: 15.0 CREDITS SELECT FROM: B M I 576, 776 COMP SCI 302, 367 STAT 371 | | ** EXCEPTION SYMBOLS ** | |
| - 2) Must complete 1 Capstone Course: BIOLOGY 699 with Prof. Amy Charkowski. | | AC = course added to requirement/sub-requirement CM = course modified CY = catalog year modified DC = course deleted from requirement/sub-requirement EC = course exchanged in for another RM = requirement modified WC = waive course WP = waive mock/pseudo course | |
| Course must meet CALS Capstone Characteristics described in the Undergraduate Catalog. | | ----- MEMORANDA ----- | |
| NEEDS: 1 COURSE SELECT FROM: BIOLOGY 699 | | ***** STUDENT - PLEASE NOTE ***** | |
| ELECTIVES Courses in excess of those specifically required | | This DARS audit has been prepared to assist you in completing your degree program. While efforts have been made to insure its accuracy, it is your responsibility to satisfy all degree requirements. This audit assumes successful completion of IN-PROGRESS courses. If these courses are not completed with an appropriate grade, any requirement currently marked OK might not be satisfied. Contact your adviser and/or dean's office if you have any questions. | |
| FA13 AN SCI 375002 2.0 A>R Advanced Topics in Ornithology SP14 AN SCI 375003 1.0 IN>R Exploring Poultry SP14 BOTANY 130 5.0 INP General Botany FA13 CHEM 104 5.0 C General Chemistry SP14 CHEM 343002 3.0 INP Intro Organic Chemistry FA12 CHEM X01 4.0 T General Chemistry SP11 COM ARTS105 3.0 T Public Speaking FA10 ENGLISH X19 3.0 T Literature & Pop Culture FA13 GENETICS160 3.0 C Heredity SPO6 GEOG 120 3.0 T Global Phys Environments SP11 HISTORY 101 3.0 T Amer Hist to Civil War Era FA12 MATH 101 4.0 T Intermediate Algebra FA10 POLI SCI104 3.0 T Intro-Amer Politics&Governmt FA10 PSYCH 202 3.0 T Introduction to Psychology SP10 SOC/HUM X11 3.0 T Peace, Conflict, & Literature FA11 SPANISH 101 4.0 T First Year Spanish SP11 SPANISH 102 4.0 T First Year Spanish FA13 ZOOLOGY 102 2.0 T Animal Biology Laboratory | | ----- ***** CONTINUED ON COLUMN 6 PAGE 3 ***** | |
| Legend ** COURSE SYMBOLS ** >D = duplicate course - retains GPA effect >R = repeatable course >S = credit split between requirements >X = repeated course - no course credit or GPA effect | | ***** CONTINUED ON COLUMN 7 PAGE 4 ***** | |

----- COLUMN 7 -----
***** University of Wisconsin - Madison *****

***** END OF ANALYSIS *****

Letters of support from three of Heartland Farm Sanctuary's core staff members:

· I am writing this letter on behalf of Quincy Markowitz, a co-worker and dear friend. I am the Shelter Manager at Heartland Farm Sanctuary, and originally met Quincy when she started out as a volunteer. After observing Quincy volunteering, I noticed her strengths in taking initiative and thinking outside of the box. I soon talked with my boss about hiring Quincy on as an employee, and since she has proved to be an invaluable asset to Heartland. Her education thus far has been immensely helpful to many of us who don't have as much farm animal knowledge. Quincy is now in a unique position where she has gained a great education on animal science from the UW, and has been able to further explore animal welfare with her job at Heartland. She has been able to learn about animals, and get to meet and know those same animals.

Quincy getting a degree in Animal Welfare would not only be monumental for her and for the UW, but also for so many people that are currently unaware of the plight that many farm animals endure. There would undoubtedly be many to follow in Quincy's footsteps, but she is the one who has paved the way for them.

Thank you for your time,

Sarah Konkol

Shelter Manager, Heartland Farm Sanctuary

Sarah.Konkol@heartlandfarmsanctuary.org

· I am writing this letter on behalf of Quincy Markowitz, who will hopefully be the very first graduate with a degree in Animal Welfare from the University of Wisconsin-Madison. It is high time for the University to offer such a program. The demand for degree programs along the lines of animal welfare will only become more and more prevalent. In this day of increased awareness of the emotional lives of nonhuman animals and humane education, the university could (and should) be blazing a trail in this area, especially in light of the issues it has had with animal experimentation. There needs to be options for students interested in animal science that don't involve the loss of life that the current programs condone.

Quincy Markowitz, herself, is a trailblazer. She is wildly passionate and intelligent, determined and hard working. Allowed to pursue her dreams of earning a degree in Animal Welfare, she will definitely make a name for herself and for the university, and will make the UW leaders proud.

Thank you for your time and consideration,

Stephanie Weis

BS Elementary Education

UW Madison, 1988

Programs Director, Heartland Farm Sanctuary

Stephanie.Weis@heartlandfarmsanctuary.org

Quincy Markowitz has been with Heartland Farm Sanctuary since late 2011. Starting out as volunteer, Quincy proved early on that she has a drive to help and understand animals in any way that she can. In June 2013, she accepted a staff role at Heartland by creating the first ever weekly maintenance shift for facility upkeep. Her ideas for improving existing animal enclosures and providing animal enrichment activities have been invaluable to our sanctuary. Quincy has also taken on additional staff responsibility this year, through our mobile Farm on Wheels program. In addition to taking on some community activity scheduling, she takes the lead staff role on most outings to community organizations, nursing homes and schools. The Farm on Wheels program is an essential part of providing humane farm animal education in our community.

In my experience with Quincy, she has excellent communication and managerial skills. She also has tremendous compassion for animals and an interest in their well being. I think she would be perfect for a new concept such as the animal welfare major! I don't see her fitting exactly in a traditional animal care major, due to my understanding of the curriculum. I strongly feel that as we enter a new age of understanding the emotional intelligence of animals, students also need an avenue to demonstrate their specific animal knowledge and apply their skills in a way that helps both animals and people. Quincy is the perfect, innovative person to represent the current way of thinking. She has the support of all of us at Heartland. You could not ask for a more capable and hard working individual than Quincy. Please let us know of any supporting evidence you need from us in terms of Quincy's experience and qualifications. Thank you for your time!

Alecia Torres

Operations Director, Heartland Farm Sanctuary

Alecia.Torres@heartlandfarmsanctuary.org

New Course Proposal

Subject Biochemistry (200)

Status Under Review by School/College

Proposer Catherine Ryan

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

Course Title

Molecular Mechanisms, Human Health & You

Transcript Title (limit 30 characters)

Mol Mech, Human Health, You

Three-digit course number

104

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

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

Catalog Information

Minimum credits

3

Maximum credits

3

Grading System

A-F

Course Description (will be published in Course Guide)

Students in the course will be introduced to the fundamentals of genetics and evolution, and with this foundation we will discuss "big-picture issues" in public health and epidemiology. Specifically, we will discuss the building blocks of the cell, how information is processed from DNA into protein, and how cellular processes are regulated. Current and medically relevant topics such as cancer, inflammation, infections, depression and drug addiction will provide the framework for further discussion of topics such as the regulation of gene expression and cellular metabolism. A major goal of this course is for students to learn about their own health and to be able to explore and question science articles they find in the mainstream media.

Does the course have prerequisites or other requirements?

No

List the prerequisites and other requirements for the course

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

Lecture

Administrative Information

Chief Academic Officer

Elizabeth A Craig

Designee of chief academic officer for approval authority

Catherine Ryan; Sebastian Y Bednarek

If there are additional contacts, please list

Lisa Lenertz-Lindemer

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?

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.)

This course is an opportunity for non-science majors to explore biology as it relates to the real world in scientific as well as cultural and environmental terms.

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).

Our intent is for this course to satisfy the Liberal Arts and Science requirement (C) and the Biological breadth requirement (B).

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

We are proposing a 3-credit interactive biological sciences course with an emphasis on genetics, epigenetics and human health for students who are non-science majors. Our intent is for this course to satisfy the Liberal Arts and Science requirement (C) and the Biological breadth requirement (B), and it be designated as Elementary level (E). The course, although rich with cutting-edge science, will be taught at an introductory level and will be suitable for students at all levels without any prerequisites. The course will be limited to 30 students in fall 2014, but our goal is to expand the number of sections to accommodate more students in future semesters. In this proposal we have included a tentative syllabus and a flyer used for advertising the course at advising meetings and at SOAR. Students in the course will be introduced to the fundamentals of genetics and evolution, and with this foundation we will discuss "big-picture issues" in public health and epidemiology. Specifically, we will discuss the building blocks of the cell, how information is processed from DNA into protein, and how cellular processes are regulated. Current and medically relevant topics such as cancer, inflammation, infections, depression and drug addiction will provide the framework for further discussion of topics such as the regulation of gene expression and cellular metabolism. A major goal of this course is for students to learn about their own health and to be able to explore and question science articles they find in the mainstream media. One theme will be the potential of molecular genetics and personalized medicine to improve human health and well being, and an associated theme will be the societal issues that are arising as a result of advances in this area. An overarching theme of the course will be the nature of science and science as a way of knowing. Another theme throughout the course will be human evolution. The several billion-year-old process that resulted in our presence on this planet is fascinating, but it is also an ongoing process. We will challenge the students to think about the cultural and environmental changes that may be presently impacting human evolution. The students will have several assignments that will encourage them to explore the course topics. For example, they will work in groups to develop a presentation about the genetic and biochemical bases of a particular disease. To develop their ability to understand what is sound science and to distinguish sound science from uncontrolled and unsound pseudoscience (something the mainstream media typically fails to do), the students will be required to design a clinical study that evaluates whether or not a chemical, behavior, food product, etc. is responsible for disease prevention or mitigation. They will also be required to write two graded opinion pieces about an ethical issue in genetics. The students will work on problem sets in small groups and engage in ethical debates throughout the semester. The course will be for three credits. The will meet for 50 minutes three times per week, and as discussed above, the students will be required to prepare a presentation and write opinion pieces. This course will challenge students to think critically about what they hear in the media and to be able to formulate their own hypotheses about certain epidemiological trends. This course will introduce the most recent findings in research, and the content will be engaging. We think that students who take this course will learn something about their own health and will become more analytical in how they think about health issues in particular and science in general.

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

There is another course, Genetics 160, that may have some overlap with our proposed course. Our course will be unique from Genetics 160 (which enrolled 95 students last fall) because it will allow the students to be more interactive and be able to work on their public speaking and writing skills. Furthermore, it will be offered at a different time slot than Genetics 160 enabling students who would have a conflict with Genetics 160 to take a science course with a molecular perspective.

Is there a relationship to courses outside your subject?

No

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

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

Richard Amasino Lisa Lenertz-Lindemer

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.

Dr. Lenertz is an Associate Faculty Associate, currently teaching Biochem 501 and Biochem 100 (formerly Biochem 375, Section 002).

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

Syllabus for Proposal.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

The Biochemistry Department currently does not offer any course for students who are non-science majors. By offering this course, we will expand our department's course offerings to students who are non-science majors.

Provide an estimate of the expected enrollment

30

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

Students will spend 45 hours (2700 minutes) in lecture, in addition to out-of-classroom work in reviewing scientific journals, preparing a presentation, and writing two opinion pieces.

If this is a variable credit course, provide rationale

N/A

Additional comments (optional)

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

Lenertz CV.pdf

L&S Designations

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

Yes

What is the rationale for seeking LAS credit?

This course will challenge students to think critically about what they hear in the media and to be able to formulate their own hypotheses about certain epidemiological trends. This course will introduce the most recent findings in research, and the content will be engaging. We think that students who take this course will learn something about their own health and will become more analytical in how they think about health issues in particular and science in general.

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

Elementary

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

Yes

Indicate which:

B-Biological Science

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

Biochemistry 104 – Molecular Mechanisms, Human Health & You – Fall 2014

Instructor Lisa Lenertz, Ph.D.
Office 1142E DeLuca Biochemistry Building
Email Lenertzlinde@wisc.edu
Lecture MWF 3:30-4:20, 1116 DeLuca Biochemistry Building

Office Hours – MWF 10:30-11:30, Tuesday 10:00-11:00 or by appointment.

Activities and assessment that have a liberal arts component to them are indicated in blue with the number of the “habits of the mind” provided.

Course objectives

1. To develop an appreciation for the complexity of life and human health.
2. To begin thinking like a scientist and how to critically evaluate scientific articles and news articles.
3. To learn something about your own health.
4. To generate enthusiasm for learning about biology regardless of your career objectives.

Grading

| | |
|--------------------------------|------------|
| Exams (2 X 100) | 200 points |
| Monogenic Disease Presentation | 100 |
| Clinical Study Paper | 100 |
| Reflections/Opinions (2 X 50) | 100 |
| Final Exam (cumulative) | <u>100</u> |
| Total | 600 |

The monogenic disease presentation, clinical study paper and reflections/opinion assignments will provide an opportunity for students to work on their oral and written communication skills – Habits of the Mind #1.

Grading Scale

| | |
|-----------|----------|
| A | 93-100 |
| AB | 90-92.9 |
| B | 80-89.9 |
| BC | 78 -79.9 |
| C | 70–78 |
| CD | 68-69.9 |
| D | 60-68 |
| F | < 60 |

Exam Policy

Make-up exams will only be considered under extreme circumstances, including verifiable illness, family emergencies, or school sponsored events. You must notify me prior to the exam if you will

be absent (one week in advance for school sponsored events). Exams missed for other reasons or without prior approval will receive zero points.

Exam Content

Anything discussed in class or anything in the required readings may be used in exams. It is your responsibility to check Learn@UW for the required reading assignments that are not listed in the syllabus.

Late Assignment Policy

All assignments must be turned in during class on the date they are due. Assignments turned in after this time will be docked 10% for each day they are late.

Cell Phones and Laptops

Cell phones and laptops are prohibited in class unless otherwise noted. Their use in class will result in a loss of points and public embarrassment.

Plagiarism

I have no tolerance for plagiarism. We will discuss this very early in the class and I will give examples of unacceptable paraphrasing. I expect you to fully understand that copying or paraphrasing from any source in which you present the original thought, wording, or organization of others as your own is unacceptable. If I detect plagiarism in the work you turn in to me, it will severely affect your grade. Claiming you did not understand what you did will not relieve you from a deduction in your grade. I may also refer the case to an appropriate Dean.

STUDENTS WITH DISABILITIES

I am committed to providing a learning environment that is accessible to all. If you are a student with approved accommodations through the McBurney Center, please contact me privately before the end of the first week of class to discuss your specific needs.

**** Note that the topics listed here are tentative. Reading assignments will be posted on Learn@UW. It is your responsibility to consult Learn@UW and your email for updated information.*

| Date | Lecture Topic |
|---------|---|
| W. 9/3 | <i>Introduction</i> – In this class we will discuss the format of the course and expectations and will be introduced to a few interesting aspects of genetics and modern medicine. |
| F. 9/5 | <i>Cells</i> – We will discuss the major subcellular structures and their functions. |
| M. 9/8 | <i>Macromolecules</i> – We will discuss the four macromolecules: proteins, lipids, carbohydrates and nucleic acids, emphasizing the importance of proteins. A goal of this day is to introduce you to the idea that the genome encodes the information to make proteins, which do much of the work in a cell. |
| W. 9/10 | <i>Cell Signaling</i> – We will discuss the basics of signal transduction and how cells receive |

| | |
|----------|--|
| | outside signals to alter their behavior and gene expression. |
| F. 9/12 | <i>DNA Structure</i> – We will discuss the fundamentals of the structure of the DNA double helix. |
| M. 9/15 | <i>DNA Structure</i> – We will continue to discuss the DNA double helix structure and the history of its discovery. |
| W. 9/17 | <i>DNA Structure</i> – We will watch a video about the life of Rosalind Franklin. Watching this video will provide students an opportunity to think about how cultural and personality differences shape scientific advances – Habits of the Mind #3. |
| F. 9/19 | <i>Chromosome Structure</i> – We will discuss how DNA is packaged in a cell and you will be introduced to epigenetics (how changes to the chromatin alter gene expression). |
| M. 9/22 | <i>DNA Replication, Mutations, Repair</i> - We will discuss natural and environmental factors that lead to mutations in DNA and how mutagens are identified. |
| W. 9/24 | <i>Central Dogma and Evolution</i> – The central dogma of molecular biology will be discussed (DNA is transcribed into RNA which is translated into protein). Genetic variability in single nucleotide polymorphisms (SNPs) and evolution will be introduced. |
| F. 9/26 | <i>Transcription</i> – We will discuss how DNA is turned into RNA. |
| M. 9/29 | <i>Translation</i> – We will discuss how RNA is turned into protein and how alterations in DNA sequences can lead to changes in the protein sequence. |
| W. 10/1 | <i>Regulation of Gene Expression</i> – We will discuss why gene expression regulation is critical and how outside factors can induce gene expression changes. |
| F. 10/3 | <i>Regulation of Gene Expression</i> – We will discuss the mechanisms by which gene expression is regulated. |
| M. 10/6 | <i>Regulation of Gene Expression</i> – We will continue our discussion about outside factors that can induce gene expression changes and propose an experiment to test whether an environmental factor or a lifestyle choice alters gene expression patterns. This class will provide an opportunity for students to start thinking about the scientific process – Habits of the Mind #2. |
| W. 10/8 | Exam 1 – The exam will consist of multiple choice, problems, short answer and essay questions. |
| F. 10/10 | <i>Mitosis and the Cell Cycle</i> – We will discuss how somatic cells replicate and what goes wrong in this process to cause cancer. |
| M. 10/13 | <i>Meiosis</i> – We will discuss how sperm and egg cells are made. |
| W. 10/15 | <i>Meiosis</i> – We will discuss how meiosis increases genetic diversity. |
| F. 10/17 | <i>Problems with Meiosis</i> – We will discuss trisomy 21 (Down's Syndrome) and miscarriages and debate whether women should have children at a younger age. These discussions will allow students to discuss how our culture sometimes shapes biology and provide an opportunity for students to hear their peers express opinions and perspectives that may be drastically different from their own – Habits of the Mind #3. |
| M. 10/20 | <i>Introduction to Mendel</i> – The basics of genes and alleles will be discussed. |
| W. 10/22 | <i>Mendelian Genetics</i> – We will perform basic genetics problems (one gene, one trait). Throughout the course the students will perform genetics problems during class while working in small groups. These activities will challenge the students to evaluate new information and data in order to solve the problems – Habits of the Mind #2. |
| F. 10/24 | <i>Mendelian Genetics</i> – We will perform basic genetics problems (one gene, one trait). |
| M. 10/27 | Group Presentations – The students will deliver a presentation about a monogenic disease, discussing how it is inherited, symptoms and treatments of the disease, what population groups it is more prevalent in and how the defective gene affects the cell. The students will present in groups of three. Groups 1 and 2 will present today. |
| W. 10/29 | Group Presentations – Groups 3 and 4 will present today. |

| | |
|---|---|
| F. 10/31 | Group Presentations – Groups 5 and 6 will present today. |
| M. 11/3 | Group Presentations – Groups 7 and 8 will present today. |
| W. 11/5 | Group Presentations – Groups 9 and 10 will present today. |
| F. 11/7 | <i>Reflections About Group Presentations</i> – We will discuss genetic testing and debate how you would live your life if you knew a late onset fatal genetic disease ran in your family but you did not know yet if you will develop it or not. These discussions will allow students to hear their peers express opinions and perspectives that may be drastically different from their own – Habits of the Mind #3. |
| M. 11/10 | <i>Extensions of Mendel</i> – We will perform sex-linked genetics problems and discuss the royal family. |
| W. 11/12 | <i>Extensions of Mendel</i> – We will perform co-dominant genetics problems (ABO blood system) and discuss how the ABO blood system works. |
| F. 11/14 | <i>Extensions of Mendel</i> – We will perform sex-influenced genetics problems (pattern baldness) and epistasis (coat color in Labrador retrievers) and briefly discuss quantitative traits (i.e. height, athletic ability, intelligence, etc.). |
| M. 11/17 | <i>Epigenetics</i> – We will review chromatin structure, discuss how epigenetic modifications work and watch a video about epigenetics and twin studies. |
| W. 11/19 | <i>Epigenetics</i> – We will examine abstracts that demonstrate certain chemicals induce epigenetic modifications and will discuss qualities of clinical research studies that make them convincing. Take home exam 2 due. Our discussions about epigenetics and the clinical research paper assignment will allow the students to think about the scientific process, specifically as it relates to clinical studies – Habits of the Mind #2. |
| F. 11/21 | <i>Evolution and Population Genetics</i> – Natural selection will be discussed and how the sickle cell-causing polymorphism became prevalent in certain parts of Africa and Asia. The basic population genetics equations will be introduced. |
| M. 11/24 | <i>Evolution and Population Genetics</i> – Our discussion about natural selection and single nucleotide polymorphisms will be continued. In this class we will discuss whether cultural shifts are increasing the rate of evolution – Habits of the Mind #3. |
| W. 11/26 | <i>Cancer</i> – The molecular mechanisms of cancer development will be discussed, including cancer-causing viruses such as HPV. |
| F. 11/28 | Thanksgiving |
| M. 12/1 | <i>Cancer</i> – We will continue our discussion about cancer and debate whether the HPV vaccine should be mandated for everyone. Clinical study paper due. These discussions will allow students to hear their peers express opinions and perspectives that may be drastically different from their own – Habits of the Mind #3. |
| W. 12/3 | <i>HIV</i> – The HIV life cycle will be discussed. |
| F. 12/5 | <i>HIV</i> – A UW physician who treats patients with HIV will discuss his experiences in an informal question and answer session. This day provides an opportunity for students to ask the physician questions about how HIV stereotypes and access to treatment has changed through the last few decades – Habits of the Mind #3. |
| M. 12/8 | <i>GMOs</i> – Uses for GMOs will be discussed, and we will debate whether genetically modified food is causing health problems and what could be done to definitively determine this. This discussion provides an opportunity for the students to think about the types of studies that could help solve the question of whether GMOs are harmful or not to human health – Habits of the Mind #2. |
| W. 12/10 | <i>Forensics</i> – Short tandem repeats (STRs) will be introduced and how they are used to solve criminal cases. |
| F. 12/12 | <i>Final Exam Review</i> |
| Final during the week of 12/15-12/19 | |

Lisa Y. Lenertz, Ph.D.

972-365-1219 Lisa.Lenertz@gmail.com 4417 Prairieview Drive Madison, WI 53704

Education/ Training

Univ. Wisconsin-Madison, Postdoctoral Fellow, Mentor: the late Dr. Paul J. Bertics, 2007-2012

Univ. Texas Southwestern Medical Center at Dallas, Ph.D. Biomedical Sciences,
Mentor: Dr. Melanie H. Cobb, 2001-2007

Univ. of Minnesota Duluth, B.S. Biochemistry and Molecular Biology, 1997-2001

Teaching Experience

University of Wisconsin-Madison, Madison, WI

- Associate Faculty Associate, 2014-present. I am currently coordinating and teaching half of Biochemistry 501. I am also teaching Biochemistry 375 Freshman Seminar, another team taught course. In the summers I will participate in SOAR.

Edgewood College, Madison, WI

- Adjunct Professor, Fall 2013. I taught Introductory Biology – Human Cell Biology & Genetics for nursing majors and Genetics for biology majors.

St. Olaf College, Northfield, MN

- Visiting Assistant Professor, 2012-2013 academic year. I taught Introductory Biology, Genetics, and an upper level topics course about inflammation. I team taught Introductory Biology during interim.

University of Wisconsin-Madison

- Instructor, 2011. Taught Biochemical Methods 651, a current topics in biochemistry course. Developed course material, assisted students in preparing presentations, led discussions.
- Instructor, 2009. Co-designed and co-taught Microbiology 100, a new course for non-science majors. Developed course material, incorporated active learning into the classes, lectured, led discussions.
- Wisconsin Program for Scientific Teaching Fellow, 2008-2009. Took a course about incorporating active learning into traditional lectures, assessing student learning, how to create a more inclusive classroom and address issues of diversity, and how to gauge the effectiveness of different teaching techniques.

University of Texas Southwestern Medical Center

- Guest lecturer for pharmacology course for physician's assistant students, 2004-2006. Lectured about anti-epileptic and anti-psychotic drugs. Prepared exam questions.

Brookhaven Community College, Farmers Branch, TX

- Anatomy & Physiology I lab instructor, 2004. Assisted students in the laboratory portion of the course. Administered lab practical exams.
- Anatomy & Physiology I and II guest lecturer, 2004-2005

Research Experience

University of Minnesota Duluth

- Supplemental Instructor, 1998-2000
 - Held biweekly review sessions for General Biology students who wanted extra instruction. The average grade for students who attended my review sessions was an A- while the class average was a C.
 - Developed lesson plans, worksheets, practice quizzes and tests.
- Teaching Assistant, Animal Diversity, 2001
 - Assisted students in laboratory portion of course and administered lab exams.

St. Olaf College: Visiting Assistant Professor, 2012-2013 academic year

- I continued my postdoctoral research by directing two undergraduate projects and am currently writing a literature review about nucleotide receptors in stem cells.

University of Wisconsin-Madison: Postdoctoral Fellow, 2007-present

- Deciphered the molecular mechanisms by which the nucleotide receptor P2X7, a pro-inflammatory molecule regulates the inflammatory response.
 - Identified polymorphic residues in P2X7 that are critical for its activity.
 - Determined that N-linked glycosylation at a polymorphic residue in P2X7 is required for its function.
 - Identified an ER retention signal in P2X7.
 - Defined the mechanisms by which P2X7 induces the transcription factor FosB and identified gene targets of the ATP/P2X7/FosB pathway.
- Collaborated with a pulmonary specialist to delineate the mechanisms by which specific P2X7 polymorphisms contribute to Rhinovirus-induced loss of asthma control.
- Presented data at national conferences, including giving invited talks.
- Mentored one high school student, three undergraduate students and one graduate student. One of my undergraduate mentees and my graduate mentee are co-authors on recent manuscripts.
- Served as the thesis advisor for a Master's student upon the passing of our mentor.
- Awarded postdoctoral fellowships from The Hartwell Foundation and the American Heart Association.

University of Texas Southwestern Medical Center: Graduate Student, 2001-2007

- Biochemically characterized WNK1, a kinase that is mutated in individuals with a hereditary form of hypertension.
 - Identified osmotic stress as a WNK1 stimulator and several substrates of WNK1.
 - Identified a lysosomal degradation protein, VPS4, as a WNK1 binding partner, potentially explaining how WNK1 can regulate the trafficking of ion channels.
- Supervised a technician for two years and mentored two graduate rotation students. Assigned projects related to my research to the technician.
- Awarded a predoctoral fellowship from the Department of Defense.
- Presented data at national conferences.

Fellowship Awards

- 1) American Heart Association Postdoctoral Fellowship, 7/11-6/13
 - \$105,000 for 2 years
 - Scored in the top 2% of the applicants
- 2) The Hartwell Foundation postdoctoral fellowship, 1/08-12/09
 - \$100,000 for 2 years
- 3) Department of Defense breast cancer predoctoral fellowship, 2/04-2/07
 - \$89,000 for 3 years

Professional Service

Biochemistry Undergraduate Committee, University of Wisconsin-Madison

- 2014-present. Review undergraduate research proposals.

Career development workshops, University of Wisconsin-Madison

- 2010, Organized and facilitated a career development workshop for graduate students and postdocs about scientific teaching.
- 2011, 2012, Served on career development workshop panels about postdoc life.

Peer-review manuscripts. Review articles for several journals including PNAS and PLoS ONE.

Peer-reviewed grant. Reviewed an internal grant for an investigator at Sultan Qaboos University.

Undergraduate Research Experiences

Mayo Medical Center, Department of Biochemistry, Mentor: Dr. Nita J. Maihle, 6/99-8/99

Princeton University, Department of Molecular Biology, Mentor: Dr. James R. Broach, 6/00-8/00

Univ. of Minnesota Duluth, Department of Biology, Mentor: Dr. Merry Jo Oursler, 1/99-5/01

Community Involvement

American Cancer Society Cancer Action Network
American Heart Association

Awards, Honors

American Heart Association Postdoctoral Fellowship, 2011-2013
Keystone Symposia travel awards, 2010, 2005
The Hartwell Foundation Postdoctoral Fellowship, 2007-2009
Department of Defense Predoctoral Fellowship, 2004-2007
Bachelor of Science, magna cum laude, 2001, University of Minnesota Duluth
University of Minnesota Duluth Chemistry Departmental Honors, 2001
University of Minnesota Undergraduate Research Opportunities Program awards, 2000, 1999
Association of Women in Science scholarship, 1999

Publications

1. Wickert LE, Blanchette JB, Waldschmidt NV*, Bertics PJ, Denu JM, Denlinger LC, **Lenertz LY**. The C-terminus of human nucleotide receptor P2X7 is critical for oligomerization and N-linked glycosylation. (2013) *PLoS ONE* e63789. * NV Waldschmidt is an undergraduate.
2. **Lenertz LY**, Baughman CB*, Waldschmidt NV*, van Wijnen AJ. P2 receptors in hematopoietic and mesenchymal stem cells. Review article in progress. *CB Baughman and NV Waldschmidt are undergraduates.
3. Wickert LE, Blanchette JB, **Lenertz LY**. Detecting Surface-Exposed P2X7 in Purified Human Monocytes and HEK293 Cells. In progress. Invited to write this manuscript by the *Journal of Visualized Experiments*.
4. Shi L, Manthei DM, Guadarrama AG, **Lenertz LY**, Denlinger LC. Rhinovirus-induced IL-1 β release from bronchial epithelial cells is independent of functional P2X7. (2012) *Am J Respir Cell Mol Biol*. 47, 363-71.
5. Gavala, ML*, **Lenertz LY***, Shi L, Manthei DM, Guadarrama A, Denlinger LC. P2X7-stimulated COX-2 and PGE2 production in alveolar macrophages. In preparation. * Co-first author
6. Gavala ML, Liu YP, **Lenertz LY**, Zeng L, Blanchette JB, Guadarrama AG, Denlinger LC, Bertics PJ, Smith JA. Nucleotide receptor P2RX7 stimulation enhances LPS-induced interferon- β production in murine macrophages. (2013) *J. Leukoc. Biol*. [Epub ahead of print]
7. **Lenertz LY**, Gavala ML, Zhu Y, Bertics PJ. P2X7-mediated gene transcription: a critical regulator of immunologic, osteogenic and neurologic functions. (2011) *Immunol Res*. 50, 22-38.
8. **Lenertz LY**, Wang Z*, Guadarrama A, Hill LM, Gavala ML, Bertics PJ. Mutation of putative N-linked glycosylation sites on the human nucleotide receptor P2X7 reveals a key residue important for receptor function. (2010) *Biochemistry* 49, 4611-9. * Z Wang was an undergraduate.
9. Gavala ML, Hill LM, **Lenertz LY**, Karta M, Bertics PJ. (2010) FosB/AP-1 activation is a sensitive and prominent downstream signal of the extracellular nucleotide receptor P2RX7. *J. Biol. Chem*. 285, 34288-98.
10. Hill LM, Gavala ML, **Lenertz LY**, Bertics PJ. (2010) Extracellular ATP may contribute to tissue repair by rapidly stimulating purinergic receptor X7-dependent vascular endothelial growth factor release from primary human monocytes. *J. Immunol*. 185, 3028-34.
11. **Lenertz LY**, Gavala ML, Hill LM, Bertics PJ. (2009) Cell signaling via the P2X7 nucleotide receptor: linkage to ROS production, gene transcription, and receptor trafficking. *Purinergic Signal*. 5, 175-87.
12. **Lenertz LY**, Lee BH, Min X, Xu BE, Wedin K, Earnest S, Goldsmith EJ, Cobb MH. (2005) Properties of WNK1 and implications for other family members. *J. Biol. Chem*. 280, 26653-
13. Xu BE, Lee BH, Min X, **Lenertz L**, Heise CJ, Stippec S, Goldsmith EJ, Cobb MH. (2005) WNK1: analysis of protein kinase structure, downstream targets, and potential roles in hypertension. *Cell Res*. 15, 6-10.
14. Xu BE, Stippec S, **Lenertz L**, Lee BH, Zhang W, Lee YK, Cobb MH. (2004) WNK1 activates ERK5 by an MEKK2/3-dependent mechanism. *J. Biol. Chem*. 279, 7826-31.
15. Lee BH, Xu BE, Min X, **Lenertz L**, Heise CJ, Goldsmith EJ, Cobb MH. (2004) WNK1. *12th International Conference on Second Messengers and Phosphoproteins*.

16. Chai W, Ford LP, **Lenertz L**, Wright WE, Shay JW. (2002) Human Ku70/80 associates physically with telomerase through interaction with hTERT. *J. Biol. Chem.* 277, 47242-7.

Scientific Presentations

Paul Bertics Memorial Symposium, 2012 - posters

University of Wisconsin Department of Biochemistry Annual Retreat, 2011 - talk

American Society of Neurochemistry Annual Meeting, 2011 - talk

Keystone Cancer and Inflammation Meeting, 2010 - poster

American Society of Cell Biology Annual Meeting, 2008 - poster

Department of Defense Breast Cancer Era of Hope Meeting, 2005 - poster

Keystone Cell Polarity/Asymmetry Divisions Meeting, 2005 - poster

American Society of Cell Biology Annual Meeting, 2003 - poster

New Course Proposal

Subject Biology (205)

Status Under Review by Univ Curriculum Comm

Proposer Mary L Smith

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

Course Title

Capstone in Biology

Transcript Title (limit 30 characters)

Capstone in Biology

Three-digit course number

599

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)?

Yes

Will this course be crosslisted?

No

Note the crosslisted subjects

Is this a topics course?

No

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

Yes

If yes, please justify

Students may elect to take more than one semester to complete a capstone or may elect to complete multiple one-semester capstones

Typically Offered

Fall, Spring, Summer

Catalog Information

Minimum credits

1

Maximum credits

4

Grading System

A-F

Course Description (will be published in Course Guide)

The Biology capstone is an experiential learning opportunity whereby a student is called upon to apply a series of skills to a scientific research project or to a real-world problem under the supervision of the supervising instructor. Students will practice their problem solving-skills, be exposed to multidisciplinary approaches, develop team-work and interpersonal skills, access and use information resources, reflect upon, or address societal, economic, ethical and professional issues, and prepare a written report or an oral presentation.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Junior standing (to be completed preferably during the student's final two or three semesters)

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

Independent Study

Administrative Information

Chief Academic Officer

Michel A Wattiaux

Designee of chief academic officer for approval authority

Amy S Bethel; Mary L Smith

If there are additional contacts, please list

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 2013-2014

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.)

This course will provide a single course number for all students in the Biology major to use for their capstone requirement when completed as an independent study. This course will differentiate the Biology capstone experience from other independent study (299 or 699).

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).

Meet the major's capstone requirement

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

The capstone experience is intended in part to engage students in synthesizing knowledge and connect course material typically taught in discrete disciplinary courses within the core curriculum (i.e., the Biology Major). Thus the course emphasis is not as much on course content as it is in developing a set of skill described in the CALS capstone requirement (see attached). The "content" area, activities, products and outcomes will be described in the "599 Biology Major Capstone - Proposal and Approval form" (see attached) that will be developed jointly and co-signed by the student and the instructor. Examples of most typical indicators of completion of each capstone criteria are as follows. The proposal form will identify societal, economic, ethical, scientific and professional issues that will be at the core of the capstone experience (criteria # 5). In order to develop problem-solving skills (criteria # 1), teamwork and interpersonal skills (criteria # 3), student will generally be expected to participate in a faculty member's research program as a novice with research-related responsibilities under guidance of a qualified supervisor. The proposal form will indicate also the multiple disciplines that the student will be expected to draw from in order to complete the capstone project (criteria # 2). In combination with the summarization of original data collected during the capstone project, students will access and use information resource to (criteria # 4) to write a paper, create and present a poster, deliver a presentation, or design a web page for a broad audience of multiple stakeholders (criteria # 6).

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

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.

Interdis Courses (C A L S) (494)

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

Supervising instructors will be tenured or tenure-track faculty members affiliated with the Biology Major who have students completing the capstone project as part of their lab-based, field-based, or international-based research or outreach program

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.

Biology Major Capstone Syllabus.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This course will help to better define what is a Biology Major capstone experience and help ensure that all students in the major choosing to complete their capstone outside of a pre-approved capstone course are meeting the goals of a capstone as per CALS capstone requirement guidelines.

Provide an estimate of the expected enrollment

100-120 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

Students will be expected to spend 3 hr of capstone-related activities per week over a 15 week period as the unit for claiming one credit.

If this is a variable credit course, provide rationale

We want to give student and instructors the flexibility they need as we anticipated contrasting situation. Students who will complete their capstone in a campus laboratory will be advise to enroll for 3 credit (corresponding to 9 - 10 hours a week over a 15 week period). Some students may wish to extend their experience over multiple semesters.

Additional comments (optional)

Attached is the Biology Major 599 Proposal and Approval Form

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

2013-01-26-599-Capstone-proposal-Form.pdf

L&S Designations

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

Yes

What is the rationale for seeking LAS credit?

The Biology Capstone as described here will meet at least the first two of the three "habits of the mind" of liberal arts education. First students engaged in the Biology Capstone will gain skills in written and verbal communication, expressing ideas and point of views effectively. They will reflect and question current knowledge through reading, research and consider the views of a variety of stakeholders. Second, students engaged in the Biology Capstone will draw flexibly upon and apply mode of thoughts of the groups of majors areas of knowledge. The products of the biology major capstone (hard-to-measure product such as learning gains and tangible outcomes such as a report, a publication or an oral presentation) will result from scholarly research-based experience framed as an undergraduate students experience as described in the syllabus.

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

Advanced

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

Yes

Indicate which:

B-Biological Science

General Education Designations

Should the course be reviewed for the general education requirement?

No

Which requirements?

Biology Major Capstone (Bio 599)

This syllabus provides an outline of what you are expected to know or to do to complete this experiential course. In addition, it outlines how you will be expected to document your learning gains (i.e., newly acquired knowledge and skills) as a result of your engagement in your capstone project.

Objectives (Student Learning Outcomes):

The Biology Major 599 capstone is a experiential learning opportunity whereby a student is called upon to apply a series of skills to a scientific research project or to a real-world problem under the supervision of the supervising instructor. As per CALS expectations, a capstone experience should meet the following criteria:

1. Develop problem-solving skills
2. Expose student to multidisciplinary approach
3. Develop teamwork and interpersonal skills, including the ability to communicate effectively to multiple audiences
4. Develop skills in accessing and using information resources (e.g., electronic databases, library resources, national repositories)
5. Address societal, economic, ethical, scientific, and professional issues
6. Include written, oral, and/or multimedia reports by each student to communicate and extend that experience.

Course Materials (Capstone proposal form) .

There are no textbook or curricular-based material for this course. Students are expected to contact possible instructors or mentors and complete the “Biology Major Capstone 599 Proposal and Approval Form” with their approval. Note that the student’s experience must be rooted in a biological issue. On occasions a field (internship, study abroad) or lab experience that is not research based could serve as a capstone, if this would better serve the student’s interests and goals. In all cases however, the experience must be scholarly. Additional details on CALS capstone requirement can be found at: www.biology.wisc.edu/biocapstone

Capstone Time Commitment.

Students and their direct supervisors are expected to establish a close working relationship over the course of the experience and interact on a regular basis. For laboratory-based experiences students are expected to spend 2-3 hours per week over the 15-week of a semester per credit. This equivalency should be used to determine the number of credit to take or the number of hours on the capstone project for students engaging in other types of capstone experiences.

Meeting Capstone Criteria

A student may complete their capstone by participating in a faculty member’s research program, conduct an internship or a field-based outreach program. To determine whether an experience meet the CALS capstone criteria, use the list of examples or indicators listed here for informational purpose for each criteria:

1) Develop problem-solving skills: Example 1: A student working in a laboratory may be challenge to troubleshoot problems that arise in implementing standard operating protocols. The student is expected to search for solutions and propose alternative approaches to overcome the

hurdles. Example 2: A student plans a field-based research project or an internship in a institution or organization outside the UW-Madison (e.g., Hospitals, Zoos, farms, etc.) independently in a way to meets all criteria of the Biology Major capstone requirements.

2) Expose student to multidisciplinary approach: Example: A student writes a research proposal, a report or prepares a presentation that demonstrate a clear understanding of the perspective of multiple stakeholders. Example 2: The student uses research techniques and methods that are drawn from more than one discipline.

3) Develop teamwork and interpersonal skills, including the ability to communicate effectively to multiple audiences: Example 1: A student demonstrates willingness to listen carefully, to help others, and to act responsibly. Example 2: A student plans a field-based research project and must develop, coordinate and plan visit and data collection for a series of research sites.

4) Develop skills in accessing and using information resources: Example 1: A student conduct a literature review using the UW-Madison library resources. Example 2: A student design and develop a web page to document the project.

5) Address societal, economic, ethical, scientific, and professional issues: Example 1: A student's capstone proposal, report or oral presentation includes an analysis that may help justify the project because of its societal, economic or ethical implications. Example 2: The student documents dilemmas, conflict of interests, or particular aspects of professional attitude they became aware of at any particular phase of their capstone experience. Such documentation can take place informally by discussing them with their supervisor or instructor, or formally in the final written report or oral presentation.

6) Include written, oral, and/or multimedia reports by each student to communicate and extend that experience. Example 1: During their capstone experience, students will be required to communicate on several levels, including with their mentor and other members of the research team. Example 2: A student's capstone experience includes reading a number of papers and either writing a report or delivering a power point presentation to the research team in a seminar-type setting. Example 3: The student final product is a scholarly publication to be presented at a scientific conference (abstract, short communication or full paper).

Grades

Student's performance will be assessed on the A-F grading scale. The following grading rubrics are provided to course instructors as suggested guidelines:

- | | |
|---|-----|
| 1. Student level of engagement and commitment: | 20% |
| 2. Student abilities as a self-directed learner: | 20% |
| 3. Student abilities as a team member: | 20% |
| 4. Student abilities to reflect on the experience (during and after): | 20% |
| 5. Student final report or oral presentation: | 20% |

The course is not graded on a curve. End of semester scores will be translated into a letter grade as follows: A = 92-100; AB = 88-91; B = 82-87; BC = 78-81; C = 70-77; D = 60-69, and F = below 60.

Biology Major Capstone 599 Proposal and Approval form

On the next page is a list of 6 criteria used to evaluate whether a student's experience meets the spirit of the CALS capstone requirement. Note that the student's experience must be rooted in a biological issue. On rare occasions a field (internship, study abroad) or lab experience that is not research based could serve as a capstone, if this would better serve the student's interests and goals. In all cases however, the experience must be scholarly. Additional details on CALS capstone requirement can be found at: www.biology.wisc.edu/biocapstone

Instructions: how to handle this proposal form

1. A Biology Major student seeking to complete capstone requirement with a 599 must complete and submit this completed form in collaboration with an instructor (usually a faculty) who will have direct oversight of the experience and the responsibility to assign the final grade.
2. When the capstone experience is laboratory-based, the instructor may delegate oversight authority to a supervisor (e.g., laboratory technician, graduate student or post-doc) to guide the student's experience.
3. Both the student and the instructional faculty must sign the completed proposal form and return it to the Biology Major's Office at 445 Henry Mall; room 118.
4. If issues or problems are detected, the office of the Biology Major may contact the student and supervisor within two week of proposal submission.

Section 1: Student / Instructor / Supervisor info:

Student Name (First and Last name): _____

Campus ID number: _____

Email Address (myname@wisc.edu): _____

I have completed Introductory Biology (Bio/Bot 130 plus Bio/Zoo 102, Bio/Bot/Zoo 152, or Biocore 303) prior to the semester of this capstone experience: YES NO (~~strike through the not applicable~~)

I am within my last 3 semesters of my expected graduation semester: YES NO (~~strike through the not applicable~~)

Anticipated Graduation Term (ex. Fall 2013): _____

Capstone Instructor Name: _____

Capstone Instructor email: _____

Capstone Supervisor Name (if different than Instructor): _____

Capstone Supervisor Name (if different than Instructor): _____

Section 2: If a student's project is part of a broader lab effort, please provide some background and clarify the student's role and contribution to this larger context in the remaining space of this page.

Section 3: Please describe below the capstone experience and how it will contribute to the following 6 criteria. *Please make sure that a link between the student's experience and the biological issue at hand is clearly established.* Emphasis should be placed on ACTIVITIES that student is expected to engage in, the PRODUCTS / OUTPUTS expected from these activities, and the MONITORING INDICATORS (e.g. deadlines, modes of communications between student and instructor or supervisor) of satisfactory completions of activities and products/outputs.

- 1. Develop problem-solving skills (150 words maximum):**
- 2. Expose student to multidisciplinary approach (150 words maximum):**
- 3. Develop teamwork and interpersonal skills, including the ability to communicate effectively to multiple audiences (150 words maximum):**
- 4. Develop skills in accessing and using information resources (e.g., electronic databases, library resources, national repositories) (150 words maximum):**
- 5. Address societal, economic, ethical, scientific and professional issues (150 words maximum):**
- 6. Communicate and extend the capstone experience via written, oral, and/or multimedia reports**

Section 4: Student Signature:

I attest the above information as truthful. The work completed will be completed during the semester mentioned on the form. Any changes to the above mentioned may jeopardize the satisfactory completion of the capstone requirement.

Student signature: _____

Date: _____

Section 5: Capstone Instructor Approval:

Student is allowed to enroll in the Biology Major 599 Capstone course for (1, 2, 3, or 4): _____ Credit(s)

I attest that the above student is participating in a directed study experience, as described above. A passing grade in this experience (A, AB, B, BC, C, D) in this course would indicate that the student completed all the activities describe in the proposal [and met the expectation outlines in the Biology Major 599 Capstone syllabus](#).

Capstone instructor (Faculty) signature: _____

Date: _____

Comments (if applicable):

New Course Proposal

Subject Life Sciences Communication (120)

Status Under Review by School/College

Proposer Kristin A.H. Klarkowski

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

Course Title

NAMA Project: Agri-Marketing Strategy and Implementation

Transcript Title (limit 30 characters)

Ag Marketing NAMA

Three-digit course number

477

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

Is this a topics course?

No

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

Yes

If yes, please justify

This course is repeatable since the team competes with a different product every year, and students can participate on the team for up to 4 years. Students can enroll in 2 credits per semester.

Typically Offered

Spring

Catalog Information

Minimum credits

2

Maximum credits

2

Grading System

A-F

Course Description (will be published in Course Guide)

A full-scale marketing campaign culminating in a national student competition for National Agricultural Marketing Association during their annual convention held every spring. Development of campaign plan includes brand identity, associated visuals, market research, strategic communication, competitive analysis, presentation skills, and learning how to work as a team toward a common goal.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Consent of Instructor required to enroll.

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

Seminar

Administrative Information

Chief Academic Officer

Dominique Brossard

Designee of chief academic officer for approval authority

Kristin A.H. Klarkowski

If there are additional contacts, please list

Shiela Reaves

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?

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.)

The Life Sciences Communication major currently has three concentrations for students to choose from. One of them is "Communication Strategy". The students who choose the "Communication Strategy" concentration in the LSC major are able to get experience through this course in an in-depth, real-world application of our curriculum. Students from majors outside of the Life Sciences Communication major have participated in the past, and are welcome to participate and enroll.

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

Develop a winning marketing plan for NAMA: National Agricultural Marketing Association competition. The project is a real-world application of the research, planning, development and budgeting required for a successful agricultural product launch through year three. Critical marketing decisions include: Identifying marketing problems and opportunities; Conducting market and competitive analyses; Applying analytical tools appropriate for marketing analysis; Formulating alternative solutions based on a combination of theory, case study and experience; Developing the written components of a marketing plan and executive summary and articulating in accurately per AP Style; Making an effective marketing plan presentation. Assignments culminate in the FINAL executive summary which require specialized computer applications, including spreadsheet analysis, financial reports, and presentation.

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

There is no duplication of content.

Is there a relationship to courses outside your subject?

No

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

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

Sarah Botham, Faculty Associate (and current UW-Madison NAMA student chapter advisor) Jacqueline Hitchon, Professor, Marketing and Market Research Scholar

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.

Sarah Botham is a nationally recognized expert in agricultural marketing and an award-winning NAMA advisor. Additionally, her network of other NAMA advisors keeps her in contact with the latest trends in agricultural marketing. Sarah Botham regularly leads her student teams into the final round of competition that is judged by NAMA professionals and thus, further extends UW-Madison's reputation in agricultural marketing and communication. As a Faculty Associate, Sarah Botham teaches three courses in the LSC major annually that have direct application to agricultural marketing.

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

lsc 477 Class syllabus FINAL.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

The students who choose the "communication strategy" concentration in the LSC major are able to get experience through this course in an in-depth, real-world application of our curriculum.

Provide an estimate of the expected enrollment

Maximum capacity is currently set at 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

Although the group meets face-to-face for four hours, bi-weekly, only two hours per week are devoted to discussion of concepts and readings in marketing communication. The other two hours are devoted to project time and development. Additionally, students are expected to devote a minimum of six hours outside of class toward academic content.

If this is a variable credit course, provide rationale

Additional comments (optional)

Academic credit is granted for the course in which students who plan to participate in the NAMA competition will obtain instruction on aspects of marketing, brand identity, market research, competitive analysis, presentation skills, etc., and receive feedback on draft marketing plan. Meanwhile, students also engage in the NAMA competition itself but as an activity separate from (though aligned with and related to) the course.

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

BOTHAM Sarah CV.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?

LSC 477 NAMA Project: Agri-marketing Strategy & Implementation • Class Syllabus

Spring 2015 • MW 4:15 – 6:15 p.m.

Sarah Botham, faculty associate & NAMA advisor

231 Hiram Smith Hall sarah.f.botham@gmail.com 608.444.1101

**** Please note:** This is a 2-credit projects course open to undergraduate and graduate students; 2 hours of weekly meetings dedicated to concepts and readings. Class is repeatable. Consent of the instructor is required to enroll.

Overview

Throughout this semester we will undertake the market research, planning and subsequent implementation methods of a full-scale marketing campaign for a new or existing agricultural product that has not yet been introduced to the market. The product will have been approved for competition by the NAMA national organization office. Once completed, students will present the plan to two panels of judges, one industry and one faculty, for review and feedback. Students will have the option to participate in presenting the plan at the National Agricultural Marketing Association's (NAMA) annual competition held during its spring convention. Development of the campaign plan and methods of implementation, brand identity, associated visuals, market research, competitive analysis and presentation skills are a large component of this class, as well as the vital lessons in learning how to work as a group toward a common goal.

Students are graded on research, design and strategy assignments that fulfill the components of the marketing plan. Several readings that will assist in plan development will be assigned as we work to prepare the executive summary and final project for presentation. With rare exception, required readings are selected by product and challenge topic and vary from year to year. In addition to assignments, grades will be awarded on research understanding and activity, participation and attendance.

Objectives

The goal of this class is to develop a full-scale marketing plan and presentation for a real agricultural product that has not yet been introduced to the market. Each student is expected to give this class the dedication, commitment, and effort needed to make an exemplary plan and presentation. This includes group meetings outside our standard class times, as required. Two formal presentations will be made at semester's end; to a group of industry 'judges' and to a group of faculty 'judges,' each acting as a board of directors for the company that owns the product for which the plan is being presented. Their feedback and review will be vital to our learning experience.

This class is designed to help build and improve marketing skills and provide an opportunity to develop teamwork, research, communication, presentation and project management skills. Additionally, it is a real-world application of the research, planning, development, budgeting and capital investment required for a successful agricultural product launch through year three.

All students should be able to make critical marketing decisions based on facts, assumptions and critical judgments as well as understand the components, strategies, tactics and implementation sequence of a full-scale marketing plan through:

1. Identifying marketing problems and opportunities

2. Identifying critical needs and researching solutions for sharing with the class
3. Conducting market- and competitive research and analyses
4. Applying analytical tools appropriate for marketing analysis
5. Formulating alternative solutions based on a combination of theory, case study and experience
6. Developing the written components of a marketing plan and executive summary and articulating it accurately per AP Style
7. Making an effective marketing plan presentation

Materials

All students will be required to have on hand for easy reference, the following materials:

- Associated Press Stylebook (or online access)
- Thumb drive and/or easily accessible and shareable web space

Readings

In addition to the readings listed below, students will be asked to locate and read additional articles and case studies based on the product, the industry category and the specific marketing challenge(s) to be addressed. Below is an example from the 2014 semester.

Reading #1 - Key Marketing Plan Elements - Handout

Reading #2 - Why Crowd Funding Campaigns Succeed: 10 Case Studies from the Best Crowdfunding

<http://peaksmaker.com/blog/2013/08/14/why-crowdfunding-campaigns-succeed-or-fail-hard-10-case-studies-from-the-best-crowdfunding-websites/>

Reading #3 – Crowd Funding Fundamentals: Creating the Right Campaign in the Right Place

<http://tech.co/crowdfunding-fundamentals-creating-right-campaign-right-place-2013-09>

Reading #4 - The High-Impact Product Launch <http://www.slideshare.net/aipmm/launch-4962283>

Reading #5 - Purposeful Competitive Intelligence Analysis [http://www.dummies.com/how-](http://www.dummies.com/how-to/content/how-to-conduct-purposeful-competitive-intelligence.html?cid=RSS_DUMMIES2_CONTENT)

[to/content/how-to-conduct-purposeful-competitive-intelligence.html?cid=RSS_DUMMIES2_CONTENT](http://www.dummies.com/how-to/content/how-to-conduct-purposeful-competitive-intelligence.html?cid=RSS_DUMMIES2_CONTENT)

Reading #6 - Marketing Strategies from Startup World

<http://www.forbes.com/sites/gaurisharma/2013/02/12/4key-marketing-strategies-from-the-startup-world/>

Reading #7 - Social Media Monitoring Tools <http://www.socialmediaexaminer.com/5-social-media-monitoring-tools-to-simplify-your-marketing/>

Activities

Course Description

This course uses several formats during the scheduled class time. During the first three weeks of the semester, the majority of time will be spent collecting data required for each section of the marketing plan. Past marketing plans

may serve as a conceptual framework, as needed. Class time will be spent with a short sectional overview (if needed) followed by discussion, data collection or brainstorming to generate drafts of the plan.

Students are expected to be prepared for class. Any research and data that will be used for the brainstorming sessions **should already have been collected** or will need to be collected outside of class.

1. Section overviews and discussion

The class will meet on Mondays and Wednesdays from 4:15 - 6:15 p.m. Overviews of each of the plan components (market analysis, competitive analysis, etc.) will provide a review of key marketing principles that are needed for the marketing plan.

2. Class participation

Student input and effort are crucial to the quality and success of the marketing plan, the presentation and the learning experience. All activities are structured around the group and all assignments, while individual components exist, are to be completed as a group.

a. **Coordination and communication** Adequate time management involves having a plan in mind and questions prepared before class. Make the most of the time that we have together. Hold one another accountable. The group is given a framework and deadlines but individuals are responsible for managing their own time and resources. Any student who fails to make a contribution and is out of contact with the group will receive a below average grade. Peer input will be used to help determine final grades for the course. Slackers will not be tolerated.

b. **Capitalize on strengths, challenge each other to grow** Students should identify an area of interest and become the expert for that section of the marketing plan. This doesn't mean that you will come into the class already an expert. The idea is to learn and grow, to challenge our understanding and our comfort zones and to gain vital, real-world experience. Becoming an expert involves:

- Casting a wide net to gather applicable market research; a few handy resources are listed here, but in addition to material presented in class, you are encouraged to use and access every possible resource available
 - a. www.marketresearch.com
 - b. www.packagedfacts.com
 - c. US Census Website
 - d. USDA websites and agricultural association websites
 - e. Industry representative(s) with insight to the market (ProNAMA friends, industry colleagues, parents, networks, etc.)
- Consolidating research into presentable market- and industry trends for class discussion- CITE EVERYTHING- use this information and class discussion to make recommendations and decisions for the plan. This information will also be used to develop charts and graphs that effectively communicate the topic
- Using industry trends and discussion to make decisions and write a concise and factual five page paper for the Executive Summary
- Translating pertinent information from the Executive Summary to the presentation

3. Assignments:

Major assignments include market research, competitive analysis and category research as well as the final executive summary and two checkpoints prior to the finished product. Failure to complete assignments in a timely manner will hinder the group's ability to complete a successful marketing plan and presentation. Lack of follow-through and failure to complete assignments will negatively impact your grade.

4. Computer Work:

Students should be proficient in and/or willing to learn several of the computer applications used in this class; at minimum, the Microsoft Office Suite and preferred, the Adobe Creative Suite. You will learn to read and develop spreadsheets and financial reports, graphics, presentations and use online and 'hard copy' research tools with proficiency. All documents created should be saved to a personal flash drive for sharing and to the team's Google Drive account. Remember to cite all sources.

Evaluation

| Activity | Points |
|--------------------------------|------------|
| Class Participation/Attendance | 100 |
| Teammate Product Evaluation | 150 |
| Team Product | 50 |
| Recommendation | |
| Sell sheet and ad design | 50 |
| Financial statement and budget | 50 |
| Executive Summary (Draft 1) | 50 |
| Executive Summary (Draft 2) | 50 |
| Executive Summary (Final) | 200 |
| Marketing Plan Presentation | 200 |
| Marketing Plan Presentation | 100 |
| Review | |
| Total Points | 900 |

Grades will be assigned based on the following scale:

837 - 900 A or 93% and above

792 - 836 AB or 88% – 92%

747 - 791 B or 83% – 87%

702 - 746 BC or 78% – 82%

657 - 701 C or 73% – 77%

585 - 656 D or 65% – 72%

584 or below F or below 65%

Additional information

Attendance and Class Participation is mandatory. Attendance is required at all scheduled meetings. **If a student is unable to attend class, it is the student's responsibility to email the instructor identifying the class date that will be missed and the reason.** Students should also inform the group or group leader of their anticipated absence from class, in advance. **Students will be permitted two excused absences during the semester. Developing an effective marketing plan will also require time and effort outside of class. Students will need to work together to set and keep additional designated meeting times.**

LSC 477 Agri-Marketing Strategy and Implementation

Course Schedule Spring 2015

| | |
|------------|---|
| January 21 | <p>Overview of class and product, status review: where we are now, where we need to go, how we will get there. Breakdown and explanation of plan components.</p> <p>Product SWOT and strategy SWOT analysis.</p> <p>Division of responsibilities for plan development. Review of important dates. Progress reports from groups & discussion. Design team begins work on 5-pager design. Company and product name discussions/decisions. Marketing team position (in-house, agency, etc.).</p> |
|------------|---|

Individual Assignment: Product reviews

Reading #1 – Key Marketing Plan Elements

| | |
|------------|--|
| January 26 | <p>Review product choice with full class, research and outline goals and objectives, expected marketing outcomes and discuss opportunities and challenges in plan development. Discussion of Reading #1.</p> |
|------------|--|

Individual Assignment: Product evaluations

| | |
|------------|--|
| January 28 | <p>Product naming ideas, research findings, group assignments.</p> |
|------------|--|

Reading #2 – Why Crowdfunding Campaigns Succeed

| | |
|------------|---------------------------------|
| February 2 | <p>Discussion of Reading #2</p> |
|------------|---------------------------------|

The Executive Summary

Draft of introduction and positioning statement.

Review of plan components:

1. The Plan -- Market Analysis – draft
2. Market Analysis – final
3. Business proposition – draft
4. Action Plan – draft
5. Budget – draft
6. Financials – draft
7. Executive summary design – draft.

Group Assignment: **The Executive Summary (Draft 1)**

February 4

Group work. Action plan and financials working together.

DRAFT

Reading #3 Crowd Funding Fundamentals

Reading #4 The High-impact Product Launch

Individual assignment: Developing an effective sell sheet or advertisement

February 9

Discussion of Readings 3 & 4

Action plan – draft and final; Compiling the draft of the entire 5-pager; Review, assess, edit, refine. Prepare 5-pager draft for emailing to industry contacts for feedback and review. Continue refining plan components.

Reading and understanding a profit & loss statement and financial statement.

Reading #5 Key Marketing Strategies from the Startup World

February 11

Discussion of Reading #5

Group work. Refining, refining. Thinking things through.

Reading #6 Purposeful Competitive Analysis

February 16

Discussion of Reading #6

Using feedback from industry review, revise, refine; resend for second round of feedback.

Reading #7 Social Media Monitoring Tools

Group Assignment: **The Executive Summary (Draft 2)**

February 18

Discussion of Reading #7. Review of progress, hurdles yet to overcome. Delegate as needed.

February 23

Implement second round of feedback. Review, assess, edit, refine. Continue working on strategies for plan and presentation in each area of responsibility. Refine design of executive summary.

Discussion re: production/use of Video or other technology, tools or props in presentation

February 25

Final changes to 5-page Executive Summary. PROOFING, PROOFING, PROOFING, checking citations, graphs, financials, etc.

Group Assignment: **The Executive Summary (FINAL)**

March 2

If needed ... FINALIZING THE EXECUTIVE SUMMARY

DRAFT

Crafting the presentation team – who and how many? Positions to fill include: Editor, Visuals/tekkie (2), introduction/closer, presenter(s) for each of the pieces (market analysis, business proposition, competitive analysis, action plan, financials and monitoring and measurement)

Group Assignment: **The Marketing Plan Presentation**

Assessing strengths, weaknesses of individual skills. Presenter auditions if necessary

What do we need to tell our story?

Research

Visuals

People

The big So What?

Identifying industry friends and contacts to act as judges for our final presentation

March 4

Final review of Executive Summary.

March 9

Sarah and class sign off on Executive Summary.
Printed, compiled prepared for use during presentation.

March 11

A day for a mini-celebration. Executive Summary successfully submitted. BREATHE.

Presentation day details outlined.

Presenter scripts in near-final status; editing, revising, 20-minute time limit.

March 16

Draft of visual presentation, rough oral presentation materials

March 18

Turning up the heat. Continued work on presentation, refining, editing, building a QUESTIONS and ANSWERS document, etc.

March 23

Practice with friends, family and any/all who are interested in assisting and providing helpful feedback. Scripts and A/V work should be far enough along to make a good showing at this practice. Time & location TBD.

March 25

Practice with NAMA industry friends@ Hiram Smith or Microbial Sciences if more space is needed. Polishing the presentation. Polishing questions.

MARCH 28 – APRIL 5 • SPRING BREAK

| | |
|--|---|
| April 6 | Practice, final edits for time, visuals finalized, proofed and ready for printing. Polishing the presentation. Polishing questions. Faculty, parents, roommates welcome ... props planned, final details and presentation schedule reviewed Collateral materials proofed and printed. Presentation books compiled and organized. Presentation evaluation forms printed and ready |
| April 8 | Presentation #1 to panel of NAMA judges from industry. |
| April 13 | Assessment/Review Things that went right ... things that didn't. Learning experiences, decompressing, etc. |
| April 15 | Presentation #2 to panel of judges from throughout CALS |
| April 20 | Assessment/Review Things that went right ... things that didn't. Learning experiences, decompressing, etc. |
| Individual Assignment: Marketing Plan Presentation Review | |
| April 22 | In-class celebration, reviewing Presentation #1 video |
| April 27 | No class – NAMA Celebration of Excellence event |
| April 29 | Reviewing Presentation #2 Video |
| May 4 | Final thoughts, semester review, lessons learned. |
| May 6 | Class picnic – campus location TBD |

Curriculum Vitae

Sarah F. Botham

8180 Langberry Rd. • Barneveld, WI 53507 • 608.444.1101 • sarah.f.botham@gmail.com

PROFESSIONAL HISTORY

January 2012 – present

President/Founder/Co-owner • Acala Farms, LLC • Barneveld, WI

Acala Farms is the exclusive producer of nutritious specialty food products made from cotton, including flavor-infused gourmet cooking oils made from cottonseed oil. Launched the company, developed its identity, packaging, e-commerce website, social media initiatives, and company and product branding. In late June 2013 will launch nationally to specialty food retail segment and engage national distribution for the first of the firm's products. Several more products are in development with anticipated launches later in 2013.

January 1988 – present

Owner/Founder • Botham, ink. (f.k.a. Sarah J. Fletcher & Associates) • Madison, WI

A reputation for results-driven work that optimizes budgets of any size has earned this company a unique niche in the business market, a solid client base and a vast local, regional and national media network. In recent years the firm has evolved to include branding and strategic planning while specializing in long-term integrated marketing communications for clients in the agricultural and life sciences industries.

August 1995 – present

Vice President/Director of Marketing • Botham Vineyards & Winery • Barneveld, WI

Responsible for growing and solidifying the brand, developing and implementing its marketing and public relations strategies, package design, website, social media and planning for and promoting at local and regional events. I also train our tasting room staff and assist as needed in the winery and in the vineyard. Co-owned with my husband, Peter, who is the firm's founder, president and vintner. Annual production is approximately 30,000 gallons.

May 1984 – 2007

Freelance Writer and Columnist

Professional freelance writer providing a spectrum of services for a national base of clients in the fields of business, science, technology, healthcare and agriculture. Authored the syndicated business-focused opinion column, *Entrepreneurial Spirit*, that originated in *The Capital Times*, Madison, Wisconsin's afternoon newspaper. Authored the eldercare-focused column, *One Family's Journey*, for agenet.com.

November 1986 – December 1987

Managing Editor • *In Business* magazine • Madison, Wisconsin

May 1985 – November 1986

Media Assistant and Photographer • State of Wisconsin • Assembly Republican Caucus
Madison, Wisconsin

May 1984 – April 1985

Lifestyles Editor • General News Reporter & Photographer • *Beaver Dam Daily Citizen*
Beaver Dam, Wisconsin

ACADEMIC HISTORY

January 2005 – present

Associate Faculty Associate/NAMA advisor • University of Wisconsin – Madison

College of Agricultural and Life Sciences • Department of Life Sciences Communication

An 83.3% appointment that includes teaching three classes each academic year, advising the UW-Madison student chapter of the National Agri-Marketing Association (NAMA) and coaching its nationally ranked

marketing team. Classes include: Advertising for the Life Sciences, Relationship Marketing, Communications in the Life Sciences, Agri-Marketing Campaigns, Agri-business Communications, and Print & Electronic Media Design. Student evaluation never below 4.7 on a scale of 5. Led student marketing team to two reserve national championships and five, top-four finishes in nine years. During my tenure as advisor the NAMA student chapter membership has grown from six to more than 40.

January 2000 – December 2004

Senior Lecturer • University of Wisconsin – Madison

College of Agricultural and Life Sciences • Department of Life Sciences Communication

Developed a curriculum that brings marketing communications to life for students through hands-on application and real-world opportunities in a range of classes that vary as needed to meet the demands of the department. Classes include: Advertising for the Life Sciences, Public Information Campaigns & Programs, Integrated Marketing Communications, and Science & Technology Newswriting. Student evaluation rating never below 4.7 on a scale of 5.

EDUCATION/SKILLS/CERTIFICATIONS

Bachelor of Science

Public Relations/Journalism/Speech Communications • Geology/Engineering
University of Wisconsin-Whitewater

Graduate Studies (special student) • University of Wisconsin – Madison

Adobe Creative Suite 6 and Microsoft Office Suite

Wisconsin Bartender's license

Wisconsin Food Processing license

Licensed private pilot

AWARDS & HONORS

- 2008 NAMA Outstanding Advisor** • Nominated by the students and selected by a national committee, this award annually recognizes one National Agri-Marketing Association (NAMA) student chapter advisor for outstanding commitment, instruction, coaching skills and leadership that goes 'above and beyond.'
- 1997 Outstanding Recent Alumni Award**, University of Wisconsin-Whitewater ... 'for professional achievement and social service having brought credit to the recipient and the University.'
- 1995 Best Traditional Label Design Award** • Pacific Rim International Wine Competition • San Bernardino, California. Label was designed for Botham Vineyards & Winery for use on its Uplands Reserve bottle.
- 1994 Grand Prize Cable Advertising Award for Creative Production** in a market with a subscriber base between 75,000 and 100,000.
- 1987 Governor Thompson's 1987 Trade Mission to Asia**. One of 10 media professionals invited to cover the trade mission, I was the only print journalist selected to travel with the mission on its stops in Seoul, S. Korea; Tokyo, Japan; Hong Kong and Mainland China.
- 1984 UPI Spot News Photo Award - National**

BOARD POSITIONS/PROFESSIONAL MEMBERSHIPS/CIVIC INVOLVEMENT

- 2012 – present** Specialty Food Association Member
- 2009 – present** International Women's Forum, Madison, WI Chapter
- 2008 – 2011** University of Wisconsin – Whitewater • College of Arts & Communications Board
- 2005 – present** Common Cause Wisconsin Board

| | |
|-----------------------|---|
| 2005 – present | National Agri-Marketing Association (NAMA) Member • Badger Chapter |
| 2004 – present | Barneveld Public Library Board |
| 1999 – 2007 | The Peoples Community Bank Board Mazomanie, Wisconsin |
| 2000 – 2002 | President, University of Wisconsin-Whitewater Alumni Association Whitewater, Wisconsin |
| 2000 – 2002 | University of Wisconsin-Whitewater Foundation Board Whitewater, Wisconsin |
| 1994 – 1999 | University of Wisconsin-Whitewater Alumni Association Board Whitewater, Wisconsin |
| 1992 – 1998 | March of Dimes -- Wisconsin Capitol Chapter Board |
| 1993 – 1995 | Madison South Rotary Board Madison, Wisconsin |

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

Course Title

Geodesign Capstone Project

Transcript Title (limit 30 characters)

Geodesign Capstone Project

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

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)

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 their advisors on projects of their own choosing and as agreed upon by their advisors and the program coordinator and director.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

In order to take this course students must have been admitted to the Capstone Certificate in Geodesign and successfully completed Land Arc 630, Land Arc 631, Land Arc 633, and Land Arc 671.

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

John Harrington (jaharrin@wisc.edu) Janet Silbernagel (jmsilber@wisc.edu), Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com>

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?

Capstone Certificate in Geodesign

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 for the Capstone Certificate in Geodesign.

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 is the final course in the Capstone Certificate in Geodesign.

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

COURSE LEARNING OBJECTIVES 1. Create a geodesign project proposal, articulating design problems, identifying and analyzing contextual conditions, forces, and issues related to their geodesign project. 2. Create data collection, data analysis, visualization, and communication workflows to complete a self-guided project within each of Steinitz's six geodesign framework models. 3. Create a geodesign framework to complete a self-guided project using each of Steinitz's six geodesign framework models. 4. Create a critical critique of their work, including critiquing software choices, method choices, data representation choices, etc.

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

The Capstone Certificate in Geodesign acknowledges that there are many ways to teach and apply geospatial theory, methods, and technology. In an effort to ensure that we were not duplicating or impinging upon existing course offerings we contacted the following departments that offer GIS courses and are part of the UW-Madison Geospatial Alliance: Civil and Environmental Engineering, Community and Environmental Sociology, Environmental Studies (Nelson Institute), Forestry and Wildlife Ecology, Geography, Geological Engineering, Geoscience, Soil Science, Urban and Regional Planning, and Zoology. Geography is of particular concern due to several levels and types of academic programs offered by the Department of Geography: an undergraduate major (BA/BS) in Cartography and Geographic Information Systems, a capstone (i.e., post-baccalaureate) certificate in Geographic Information Systems, and a MS- Cartography and Geographic Information Systems. We worked closely with Geography that these courses are distinct and provide niche training that does not negatively impact Geography's offerings. We concur with Geography that each of these programs are distinct from each other and provide particular training niches. Further detail will be provided in the forthcoming Capstone Certificate in Geodesign proposal resubmission.

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)
Geological Engineering (418)
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)

John Harrington, Professor Department of Landscape Architecture (jaharrin@wisc.edu) Janet Silbernagel, Professor Department of Landscape Architecture and the Nelson Institute (jmsilber@wisc.edu) Travis Flohr, Faculty Associate, Department of Landscape Architecture (tflohr@wisc.edu) Douglas Hadley, Senior Lecturer Department of Landscape Architecture (dbhadley@wisc.edu)

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 Flohr is a faculty associate in the department of Landscape Architecture at the University of Wisconsin-Madison. He is currently co-developing a capstone certification program in Geodesign for which he is also designing curriculum goals and certification courses. Additionally, Travis is also pursuing a PhD at the University of Colorado in Design and Planning, specifically in the sustainability and healthy environments track. After earning his bachelor degree in Landscape Architecture at The Pennsylvania State University, Travis worked as a registered landscape architect (RLA) in Pennsylvania for six years. Following his professional career, Travis earned a Masters of Science in Landscape Architecture at The Pennsylvania State University. As a landscape architect and planner, his research focuses on qualitative and quantitative methods for spatially evaluating performance of landscape architectural designs and urban and regional planning policy. He is particularly interested in understanding design and policies impacts related to ecosystem services, green infrastructure, and natural hazards. To understand design within complex social and natural systems, Travis uses qualitative and qualitative research methods, including spatial statistics and modeling. Geodesign provides a framework for his research application towards projects that foster healthy balanced development and social justice issues across the urban to rural transect. Travis is interested in embedding his research into curriculum design, while increasing

pedagogical integrity. Travis bases his pedagogical integrity on the past work of Webb, Bloom, and others taxonomies of learning objectives. Travis is currently developing the curriculum for the Capstone Certificate in Geodesign Program at University of Wisconsin-Madison; building on his past curricula work for the Masters of Urban and Regional Planning and Masters of Landscape Architecture departments at the University of Colorado Denver and the Environmental Design program at the University of Colorado Boulder. He is a co-developer of screen-capture GIS tutorials that augment technological instruction within various courses. Travis has been recognized for his work and contributions to landscape architecture and planning. The Landscape Architecture Foundation selected Travis as the Penn State Frederick Law Olmsted Scholar in recognition of his leadership and vision, engagement with current issues, and critical thinking. His other awards include: second place at the 2010 Penn State Graduate Exhibition in the Social And Behavioral Sciences category; 2010 Merit Award Winner from the American Society of Landscape Architecture; and 2010 Graduate Student Creative Achievement Award Winner from the College of Arts and Architecture. Douglas Hadley: Doug's education and professional and academic experience has been in the areas of landscape architecture, land use planning, and geographic information systems. He holds a BS from the Department of Landscape Architecture at Rutgers University, and an MA in Landscape Architecture from the Department of Landscape Architecture at UW-Madison. Doug has been an instructor in lecture and studio course, as well as hybrid and completely online courses for the past 8 years. Doug has taught courses that include both GIS basics and intermediate GIS.

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

Land_Arc_634_Capstone_Project_03182014.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

This is the final course for the Capstone Certificate in Geodesign. 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

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. This course has three hours of lecture and instructor contact per week. Discussions, collaborative studio assignments, and readings total 6-9 hours per week. See the course schedule in the uploaded syllabus for additional details concerning how this course meets federal credit guidelines.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be the final course in the Capstone Certificate in Geodesign. proposed by Department of Landscape Architecture at UW-Madison. The Capstone Certificate is a fully online, fourteen credit program that requires taking five courses over the the course of a year.

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

Travis_Flohr_CV_03212014.pdf

Doug_Hadley_CV_01102014.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

University of Wisconsin

(3 Credits)
Summer 2015

INSTRUCTOR

For this course you must choose two faculty advisors. One advisor must be from the within the approved list of geodesign faculty, please see the program website for program affiliated faculty. Potential program faculty includes John Harrington, Janet Silbernagel, Doug Hadley, and Travis Flohr. The second advisors can be a topical advisor of your choice, but must be approved by the geodesign steering committee. If you have any questions in choosing advisors please contact the program director or coordinator to discuss these choices further.

COURSE PREREQUISITES

In order to take this course students must have been admitted to the Capstone Certificate in Geodesign and successfully completed Land Arc 630, Land Arc 631, Land Arc 633, and Land Arc 671.

COURSE TEXT

While there is not an explicit reading schedule for the required texts listed below, they will be used as guides for developing your individual capstone project proposal and report.

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

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

COURSE DESCRIPTION AND DELIVERY FORMAT

Course Description

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 their advisors on projects of their own choosing and as agreed upon by their advisors and the program coordinator and director.

Course Delivery Format

This capstone course is delivered as an on-line independent study. There are no lectures; however, there will be a minimum, mandatory schedule of check-ins and feedback. Students should plan on a minimum of one hour-long check-ins with their advisors every week. Homework will require 8-11 hours of work each week to complete the report on time. Course communication will be handled using D2L, Blackboard collaborate and other means as necessary (email, phone, Skype, and/or Google chat).

COURSE LEARNING OBJECTIVES

1. **Create** a geodesign project proposal, articulating design problems, identifying and analyzing contextual conditions, forces, and issues related to their geodesign project.
2. **Create** data collection, data analysis, visualization, and communication workflows to complete a self-guided project within each of Steinitz’s six geodesign framework models.
3. **Create** a geodesign framework to complete a self-guided project using each of Steinitz’s six geodesign framework models.

4. **Create** a critical critique of their work, including critiquing software choices, method choices, data representation choices, etc.

FINAL REPORT

Student reports should follow the following format. Please recognize this is a minimum requirement list, your individual advisors may have additional criteria in addition to this list.

1. Cover
 - 1.1. Project title
 - 1.2. Project location
 - 1.3. Your name
 - 1.4. Date of final submission
 - 1.5. Advisor names
 - 1.6. University of Wisconsin-Madison
 - 1.7. Department of landscape architecture
 - 1.8. Capstone certificate in geodesign
2. Acknowledgements page
3. Executive summary/abstract
4. Table of contents
5. Introduction
 - 5.1. Basic project location information
 - 5.2. Identify key stakeholders
 - 5.3. Design problems and challenges
6. Representation models
 - 6.1. Data layers
 - 6.2. Representation methods
 - 6.3. Representation findings
 - 6.4. Representation conclusions
7. Process models
 - 7.1. Define major processes
 - 7.2. Process methods
 - 7.3. Define process relationships
8. Evaluation models
 - 8.1. Define evaluation models
 - 8.2. Evaluation methods
 - 8.3. Identify attractiveness, fit, decline or problem areas
9. Change models
 - 9.1. Present change ideas and catalyst
 - 9.2. Change methods
 - 9.3. Present a minimum of three design alternatives
10. Impact models
 - 10.1. Metrics use to evaluate base conditions and change/design alternatives
 - 10.2. Impact methods
 - 10.3. Present base condition and change/design impacts
 - 10.4. Impact findings
 - 10.5. Impact conclusions
11. Decision models
 - 11.1. Restate the purpose of the geodesign study
 - 11.2. Restate the major stakeholders
 - 11.3. Decision methods
 - 11.4. Define your decision model
 - 11.5. Decision findings

- 11.6. Decision conclusions
- 12. Summary

Each report should use an appropriate in-text and bibliographic style, as decided by your advisors. The report should also include maps, plan graphics, design drawings, images, graphs, tables, charts, embedded video, or other material as necessary and required by your advisors.

COURSE ASSIGNMENTS AND SCHEDULE

Total Possible Course Points: 400 Points

Please see the schedule for more detail and consult with your advisors for more information regarding assignment requirements and evaluation details. There is only one project for this course, a final report; however, rough drafts and weekly check-ins will also be graded.

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| | <i>Module 1: Advisor Selection and Proposal – Rough Draft</i> | | |
| 1 | During module one, students will choose and confirm their two advisors and submit a rough draft of their project proposal for feedback. Students should also have at least one conversation with their advisors. | 10 | 9 |
| | <i>Module 2: Final Proposal and Introduction – Rough Draft</i> | | |
| 2 | During module two, students will revise their proposal and submit their final proposal. Students will also submit the rough draft of their introduction. | 10 | 9 |
| | <i>Module 3: Revise Introduction and Geodesign Framework - Representation</i> | | |
| 3 | During module three, students will revise their introduction and begin their representation model work. Students should prepare a list of necessary data and provide rough draft representation models for review. | 10 | 12 |
| | <i>Module 4: Geodesign Framework - Representation</i> | | |
| 4 | During module four, students should complete their representation model work and provide a rough draft of their written and graphic work for review. | 10 | 12 |
| | <i>Module 5: Geodesign Framework - Process</i> | | |
| 5 | During module five, students will revise their representation model chapter submissions and provide a rough draft of their process model work for review. | 10 | 12 |
| | <i>Module 6: Geodesign Framework - Process</i> | | |
| 6 | During module six, students should complete their process model work and provide a rough draft of their written and graphic work for review. | 10 | 12 |
| | <i>Module 7: Geodesign Framework - Evaluation</i> | | |
| 7 | During module seven, students will revise their process model chapter submissions and provide a rough draft of their evaluation model work for review. | 10 | 12 |
| | <i>Module 8: Geodesign Framework - Evaluation</i> | | |
| 8 | During module eight, students should complete their evaluation | 10 | 12 |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| | model work and provide a rough draft of their written and graphic work for review. | | |
| 9 | <i>Module 9: Geodesign Framework - Change</i> During module nine, students will revise their evaluation model chapter submissions and provide a rough draft of their change model work for review. | 10 | 12 |
| 10 | <i>Module 10: Geodesign Framework - Change</i> During module ten, students should complete their change model work and provide a rough draft of their written and graphic work for review. | 10 | 12 |
| 11 | <i>Module 11: Geodesign Framework - Impact</i> During module eleven, students will revise their change model chapter submissions and provide a rough draft of their impact model work for review. | 10 | 12 |
| 12 | <i>Module 12: Geodesign Framework - Impact</i> During module twelve, students should complete their impact model work and provide a rough draft of their written and graphic work for review. | 10 | 12 |
| 13 | <i>Module 13: Geodesign Framework - Decision</i> During module thirteen, students should complete their decision model work and provide a rough draft of their written and graphic work for review. | 10 | 12 |
| 14 | <i>Module 14: Final Report – Rough Draft</i> During module 14, students will submit a rough draft of the complete report for review. | 70 | 12 |
| 15 | <i>Module 15: Final Report Submission</i> At the end of module 15, students will edit and submit their final report. | 200 | 12 |

COURSE GRADING POLICY

Course Grading Rubric

| Qualitative Level Achieved | Letter Grade | % Range |
|---|---------------------|----------------|
| Brilliant; highly inspired; faultless or nearly brilliant; quite inspired. | A | 94-100 |
| A level above strong; special in some way; meeting all the minimum requirements going above and beyond. | AB | 87-93.99 |
| More than strong; solid with the key required elements present; special in some way; just above the minimal requirements. | B | 84-86.99 |
| Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses. | BC | 77-83.99 |
| Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired. | C | 70-76.99 |
| 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 |

| Qualitative Level Achieved | Letter Grade | % Range |
|----------------------------|--------------|---------|
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Late Policy

All assignments are due at 12:00 AM (midnight, 24:00) CST on the due date. One (1) day late, defined as a 24-hour period from the deadline (weekday or weekend), will result in 10% of the total points for the assignment deducted. For example, if an assignment is due on a Monday and it is handed in Tuesday, a 10% penalty will be deducted. Two (2) days late will result in 25% off the module grade; three (3) days late will result in 50% off the module grade. No homework can be turned in more than three (3) days late, unless there are documented extenuating circumstances. Please keep me apprised, by email of any personal situations that might negatively impact your ability to turn homework in on time as soon as you can, so we can make arrangements to accommodate them as soon as possible. In emergencies feel free to contact me via phone, but I will still ask for you to follow up with an email.

COURSE ONLINE ETIQUITE AND PLAGARISM POLICIES

Online Etiquette

<http://online.uwc.edu/technology/etiquette>

Plagiarism

<http://students.wisc.edu/doso/acadintegrity.html>

Travis Lee Flohr

Email: tflohr@wisc.edu

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

Summary of Qualifications

- **Six years** professional experience
- Over **five 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

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| Ph.D. The University of Colorado Denver Fall 2011 – expected May 2016 | 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

Faculty Associate

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| Geodesign Program University of Wisconsin-Madison Spring 2014 | <i>Geodesign Capstone</i> 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 | <i>Geodesign for Urban Ecological Design and Planning</i> 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 | <i>Geodesign Methods</i> 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 | <i>Geodesign Program Proposal Development</i> 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

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| 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). |
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| 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 | <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, |

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| | assignments, grading rubrics, and course delivery (i.e. GIS lectures). |
| LArch 332 The Pennsylvania State University Spring 2010 | <i>Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)</i> 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

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| 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. |

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| 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 | <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

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| 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.
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*.

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 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 Heris, **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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| 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

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| 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)

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| 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

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

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| ArcGIS | Photoshop | Hand Graphics |
| AutoCAD | Illustrator | SketchUp |
| 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 Ganzer 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

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

References available upon request

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

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

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)

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.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

In order to take this course, students must have been admitted into the Capstone Certificate in Geodesign and successfully completed Land Arc 630 and Land Arc 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

John Harrington (jaharrin@wisc.edu) Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com)

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?

Capstone Certificate in Geodesign

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 for the Capstone Certificate in Geodesign.

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 Land Arc 634: 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

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

The Capstone Certificate in Geodesign acknowledges that there are many ways to teach and apply geospatial theory, methods, and technology. In an effort to ensure that we were not duplicating or impinging upon existing course offerings we contacted the following departments that offer GIS courses and are part of the UW-Madison Geospatial Alliance: Civil and Environmental Engineering, Community and Environmental Sociology, Environmental Studies (Nelson Institute), Forestry and Wildlife Ecology, Geography, Geological Engineering, Geoscience, Soil Science, Urban and Regional Planning, and Zoology. Geography is of particular concern due to several levels and types of academic programs offered by the Department of Geography: an undergraduate major (BA/BS) in Cartography and Geographic Information Systems, a capstone (i.e., post-baccalaureate) certificate in Geographic Information Systems, and a MS- Cartography and Geographic Information Systems. We worked closely with Geography that these courses are distinct and provide niche training that does not negatively impact Geography's offerings. We concur with Geography that each of these programs are distinct from each other and provide particular training niches. Further detail will be provided in the forthcoming Capstone Certificate in Geodesign proposal resubmission. 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)
Geological Engineering (418)
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)

Travis Flohr, Faculty Associate Department of Landscape Architecture

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 is a faculty associate in the department of Landscape Architecture at the University of Wisconsin-Madison. He is currently co-developing a capstone certification program in Geodesign for which he is also designing curriculum goals and certification courses. Additionally, Travis is also pursuing a PhD at the University of Colorado in Design and Planning, specifically in the sustainability and healthy environments track. After earning his bachelor degree in Landscape Architecture at The Pennsylvania State University, Travis worked as a registered landscape architect (RLA) in Pennsylvania for six years. Following his professional career, Travis earned a Masters of Science in Landscape Architecture at The Pennsylvania State University. As a landscape architect and planner, his research focuses on qualitative and quantitative methods for spatially evaluating performance of landscape architectural designs and urban and regional planning policy. He is particularly interested in understanding design and policies impacts related to ecosystem services, green infrastructure, and natural hazards. To understand design within complex social and natural systems, Travis uses qualitative and qualitative research methods, including spatial statistics and modeling. Geodesign provides a framework for his research application towards projects that foster healthy balanced development and social justice issues across the urban to rural transect. Travis is interested in embedding his research into curriculum design, while increasing

pedagogical integrity. Travis bases his pedagogical integrity on the past work of Webb, Bloom, and others taxonomies of learning objectives. Travis is currently developing the curriculum for the Capstone Certificate in Geodesign Program at University of Wisconsin-Madison; building on his past curricula work for the Masters of Urban and Regional Planning and Masters of Landscape Architecture departments at the University of Colorado Denver and the Environmental Design program at the University of Colorado Boulder. He is a co-developer of screen-capture GIS tutorials that augment technological instruction within various courses. Travis has been recognized for his work and contributions to landscape architecture and planning. The Landscape Architecture Foundation selected Travis as the Penn State Frederick Law Olmsted Scholar in recognition of his leadership and vision, engagement with current issues, and critical thinking. His other awards include: second place at the 2010 Penn State Graduate Exhibition in the Social And Behavioral Sciences category; 2010 Merit Award Winner from the American Society of Landscape Architecture; and 2010 Graduate Student Creative Achievement Award Winner from the College of Arts and Architecture.

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

Land_Arc_671_GIS_and_Geodesign_for_Sustainability_and_Resiliency_03212014.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 Capstone Certificate in Geodesign.

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. This course has three hours of lecture and instructor contact per week. Discussions, collaborative studio assignments, and readings total 6-9 hours per week. See the course schedule in the uploaded syllabus for additional details concerning how this course meets federal credit guidelines.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of the second semester in the Capstone Certificate in Geodesign proposed by Department of Landscape Architecture at UW-Madison. The Capstone Certificate is a fully online, fourteen credit program that requires taking five courses over the the course of a year.

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

Travis_Flohr_CV_03212014.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?

GIS and Geodesign for Sustainability and Resiliency

Instructor: Travis Flohr

Prerequisites

In order to take this course, students must have been admitted into the Capstone Certificate in Geodesign and successfully completed Land Arc 630 and Land Arc 631.

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.

Books and Learning Resources

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.

Course Format

Lectures: Lectures introduce the core geographic information science and Geodesign concepts and practical 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 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 | 2/9 | 2/23 |
| Lab 2 Neighborhoods | 2/23 | 3/9 |
| Lab 3 Urban morphology and sprawl | 3/9 | 3/16 |
| Lab 4 Transportation and emissions | 4/6 | 4/20 |
| Lab 5 Green infrastructure | 4/20 | 5/4 |
| Lab 6 Footprints and foodsheds | 5/4 | 5/11 |

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.

Grading: 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

Final grades are based on the UW's standard grade scheme. Adjustments (e.g. a modified curve) may be made for course trends and natural breaks.

| Percent | Letter Grade |
|---------|--------------|
| 95-100 | A |
| 90-94 | AB |
| 85-89 | B |
| 80-84 | BC |
| 75-79 | C |
| 70-74 | D |
| <70 | F |

Course Schedule

| Land Arch 671 SEM II weekly schedule based on 2014/15 | | |
|---|-----------------|--|
| Week | Date | Lectures and required reading |
| 1 | Jan 20 - 23 | Welcome, syllabus and expectations Callicott: "Environmental Ethics" Edwards: The Birth of Sustainability Oden, M.D. Equity: The Forgotten E in Sustainable Development Albert A. Bartlett. Reflections on Sustainability, Population Growth, and the Environment p 1-12 Roseland, M. Toward Sustainable Communities Cumming, G.S. et al. Complexity Theory for a Sustainable Future: Environmental Asymmetries McKibben, B. Eaarth: A New World Climate change: Big problem for Big Oil's deniers Lomborg, B. The Skeptical Environmentalist. Things are getting better Resilience: Walker and Salt: Ch 1 |
| 2 | Jan 26 - Jan 30 | Purvis, M. & Grainger, A. (2004) Geography and Sustainable Development Campagna, M. GIS for sustainable development, Chapter 1 p3-22 in 'GIS for Sustainable Development' Roseland, M. Tools for Community Sustainability Westman, W.E. (1985). Ecology, impact assessment, and environmental planning . New York: Wiley. pp. 201-268. Foster et al (2005) Rethinking the Natural Capital Metaphor: implications for |

| | | |
|---|-----------------|--|
| | | sustainability planning and decision-making Costanza et al. The value of the world's ecosystem services and natural capital 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. Bell, S., & Morse, S. (2008). Sustainability indicators Ch. 1 Bell and Morse 'Glass Ceiling' 2001 Black, W. Indicator-Based Planning Litman, T. (2011) Well measured: Developing indicators for sustainable and livable transport planning. Sustainable Seattle (1998) Indicators of sustainable community. Sustainable Communities Index Organization for Economic Co-operation and Development (OECD). Constructing a composite indicator. p19-48 in 'Handbook on Constructing Composite Indicators' |
| 3 | Feb 2 - 6 | Purvis, M. & Grainger, A. (2004). The role of spatial scale and spatial interaction in sustainable development Webber, R. GIS and Evidence-Based Policy Making: Geodemographics Guzmán, J. M. Chapter 12: The Use of Population Census Data for Environmental and Climate Change Analysis (p192-205) Census reference manual -The role of geography p1-5 Census reference manual - Geographic overview p1-22; p31-33 Census reference manual - Local census statistical areas committees and other local assistance p1-4 Census reference manual - Tracts and blocks numbering areas p.1-8 Census reference manual - Census blocks and block groups p.1, 7-11 |
| 4 | Feb 9 -13 | Lab1 - Demographic and economic indicators and relationships, the Census |
| 5 | Feb 16 - 20 | Neighborhoods, walkability and bikability Wise and Craglia Ch.2 - Urban neighborhood pattern recognition Evaluating neighborhoods (Rybarczyk and Mohapatra) Cycle tracks Register, R. Ecocity zoning M.J. Barnsley and S.L. Barr Inferring Urban Land Use from Satellite Sensor Images Using Kernel-Based Spatial Reclassification (SPARK) |
| 6 | Feb 23 - Feb 27 | Lab2 - Detecting neighborhoods, walkability service zones Linear point patterns, point density, intersection density Wise and Craglia Ch 2 Neighborhoods as conforming to a definition or based on a series of relationships. (Rybarczyk and Mohapatra) Point density, nearest neighbors, k-means clusters Clustering tests in R |
| 7 | Mar 2 - 6 | Sprawl, urban morphology, land availability and use Daniels, T. Divided We Sprawl: The Role of State and Local Governments Roseland Chapter 10 'Land use and urban form' |
| 8 | Mar 9 - 13 | Lab 3 - Urban morphology, sprawl and land use capacity |
| 9 | Mar 16 - | Midterm review Exam |

| | | |
|----|----------------|---|
| | 20 | Debrief |
| 10 | Mar 23 - 27 | Sustainable transportation, transportation sustainability, mobility Black, W. The Problem of Sustainability in the Transport Sector Toor and Havlick Transportation and sustainability in campus communities Roseland Chapter 9 ' Transportation planning and traffic management ' |
| 11 | Mar 30 - Apr 3 | Spring break! |
| 12 | Apr 6 - 10 | Lab 4 - Transportation and emissions |
| 13 | Apr 13 - 17 | Green infrastructure and environmental justice |
| 14 | Apr 20 - 24 | Lab 5 - Green infrastructure |
| 15 | Apr 27 - May 1 | Footprints and food sheds Klinsky, Sieber & Meredith. Connecting Local to Global: Geographic Information Systems and Ecological Footprints as Tools for Sustainability |
| 15 | May 4 - 8 | Lab 6 - Footprints and foodsheds Final review |
| 17 | May 11 - 15 | Final exams |

Travis Lee Flohr

Email: tflohr@wisc.edu

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

Summary of Qualifications

- **Six years** professional experience
- Over **five 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

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|--|---|
| Ph.D. The University of Colorado Denver Fall 2011 – expected May 2016 | 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

Faculty Associate

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|--|---|
| Geodesign Program University of Wisconsin-Madison Spring 2014 | <i>Geodesign Capstone</i> 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 | <i>Geodesign for Urban Ecological Design and Planning</i> 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 | <i>Geodesign Methods</i> 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 | <i>Geodesign Program Proposal Development</i> 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 | <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). |
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| 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 | <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, |

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| | assignments, grading rubrics, and course delivery (i.e. GIS lectures). |
| LArch 332 The Pennsylvania State University Spring 2010 | <i>Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)</i> 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. |

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| 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 | <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.
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*.

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 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 Heris, **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

| | |
|---|---|
| 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 |
|---------------------------|--|

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 Forest And Wildlife Ecology (396)

Status Under Review by School/College

Proposer Sara M Rodock

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

Course Title

Climate Change Ecology

Transcript Title (limit 30 characters)

Climate Change Ecology

Three-digit course number

660

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

Zoology (970)

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)

The evidence that the Earth's climate is changing at unprecedented rates is now overwhelming. Environmental tipping points are being crossed and many species are adapting or failing to adapt. Climate change poses a significant problem for conserving and managing wildlife and their habitats. In this class, students will be introduced to climate change and its ecological impacts through engaging class discussions, online climate exercises, and group projects aimed at developing climate change adaptation plans.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

Junior or Senior standing as a Forest Science or Wildlife Ecology major; graduate student standing; F&W Ecol/Zoology/Botany 460; or consent of instructor

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

Lecture

Administrative Information

Chief Academic Officer

William H Karasov

Designee of chief academic officer for approval authority

Laurie S Ballentine; Philip A Townsend; Sara M Rodock; Sheila M Timme

If there are additional contacts, please list

Benjamin Zuckerberg

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?

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.)

This course serves as an upper-level elective for undergraduates in Forest Science and Wildlife Ecology as well as graduate students in Forestry and Wildlife Ecology. This topic area is an emerging field of study in natural resources.

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).

For our undergraduate programs this course serves as either a Wildlife Ecology ecology breadth or conservation biology course and for Forest Science it serves as a track course. For our graduate programs it serves as an elective.

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

A relatively rapid increase in global temperatures has been documented during the past century, both across Earth's surface and in the oceans. A changing climate poses a significant problem for conservation agencies that have the responsibility of maintaining viable populations of species and the habitats they depend on. Climate change transcends political and jurisdictional boundaries and adds significant uncertainty to the conservation and management of our natural resources. The central purpose of this class is an introduction to modern climate change and its ecological impacts on species, communities and natural resources management. With a major focus on wildlife conservation and management, the goal of this course is to provide an understanding of the direct and indirect impacts of climate change on animal and plant communities. The course has three interconnected learning objectives for developing a comprehensive understanding of climate change ecology: First learning objective: gain a basic understanding of the observed and predicted trends in climate within an ecological context. Second learning objective: identify the ecological and evolutionary impacts of climate change on natural communities and wildlife populations (including changes in phenology and range limits, community dynamics, and altered trophic interactions). Third learning objective: develop hands-on experience in developing a climate change adaptation plan that could be implemented by a local, state, or national conservation agency

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

there are other courses on campus that address climate change

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.

Atmospheric & Oceanic Sciences (640)

Zoology (970)

Envir St - Gaylord Nelson Inst (360)

Geography (416)

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

Benjamin Zuckerberg

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.

FWE_660_ClimateChange_2-17-14.pdf

Justifications

Explain how this course contributes to strengthening your curriculum

The Climate Change Ecology course will help to strengthen both the undergraduate and graduate curriculums in Forest and Wildlife Ecology by providing additional training in climate changes impacts on natural resources management. This is a growing area of concern in natural resources management and is not covered by other courses in the department. This course is a necessary component for preparing our graduates for future careers in wildlife management, conservation biology, natural resource planning, and academia. Understanding and incorporating the impacts of climate change on ecological systems is an increasingly important aspect of forest and wildlife ecology.

Provide an estimate of the expected enrollment

30

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 meets for two power lectures a week for the duration of the semester (hour and 15 minutes, two times a week) which meets the federal definition of a credit our

If this is a variable credit course, provide rationale

none

Additional comments (optional)

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?

Yes

What is the rationale for seeking LAS credit?

A relatively rapid increase in global temperatures has been documented during the past century, both across Earth's surface and in the oceans. The study of modern climate change is a wicked conservation problem that spans basic science and its application to applied problems. The course has three interconnected learning objectives for a better understanding of the impacts of climate change on ecological systems. First, students will gain a basic understanding of the mechanisms, feedback systems and drivers associated with modern climate change. Second, students will cover the ecological and evolutionary impacts of climate change on natural communities and wildlife populations. Finally, by the end of the class, students will complete an evaluation of the current methods of climate change adaptation and mitigation being implemented across the country. Student learning goals are assessed by both writing and oral communication, and are required to understand how basic ecological and evolutionary principles can be used to predict the myriad of biological responses to climate change. Climate change adaptation is inherently multidisciplinary, integrating science with society to reach practical solutions. The central project of the course consists of a semester-long group exercise (groups of 4-5 students) with the goal of developing a Climate Adaptation Plan for a vulnerable species or community in Wisconsin. With regard to the Biological Sciences breadth area, this course examines scientific studies and breakthroughs in climate change biology in both terrestrial and aquatic ecosystems. Classroom discussions often cover the scientific method, hypothesis driven research, broader environmental impacts, and quantitative approaches.

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

Advanced

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

Yes

Indicate which:

B-Biological Science

General Education Designations

Should the course be reviewed for the general education requirement?

No

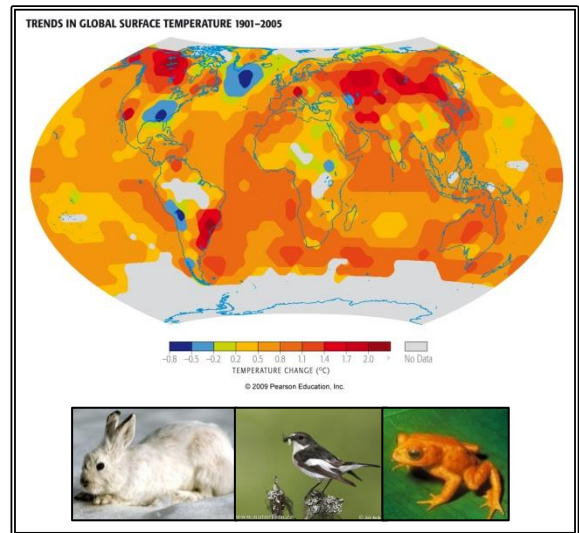
Which requirements?

CLIMATE CHANGE ECOLOGY (Forest and Wildlife Ecology 660)**INSTRUCTOR:**

Benjamin Zuckerberg, Ph.D.
Assistant Professor
Department of Forest and Wildlife Ecology
226 Russell Labs, 1630 Linden Drive, Room A133
Phone: 263-0853
E-mail: bzuckerberg@wisc.edu
Website: <http://labs.russell.wisc.edu/zuckerberg/>
Office Hours: Tuesday and Thursdays (1:30-2:30)

LECTURES:

September 2nd, 2014 – December 11th, 2014
Tuesdays and Thursdays: 11:00 a.m. -12:15 p.m.
Russell Laboratories Room 104

**COURSE PURPOSE, GOALS AND OBJECTIVES:**

A relatively rapid increase in global temperatures has been documented during the past century, both across Earth's surface and in the oceans. A changing climate poses a wicked problem for conservation agencies that have the responsibility of maintaining viable populations of species and the habitats they depend on. Climate change transcends political and jurisdictional boundaries and adds significant uncertainty to the conservation and management of our natural resources. The central purpose of this class is an introduction to ecological impacts of modern climate change on species and communities. With a focus on wildlife conservation and management, the goal of this course is to provide an understanding of the direct and indirect impacts of climate change on animal and plant communities.

The course has three interconnected learning objectives for developing a comprehensive understanding of climate change ecology:

First learning objective: gain a basic understanding of the observed and predicted trends in climate within an ecological context.

Second learning objective: identify the ecological and evolutionary impacts of climate change on natural communities and wildlife populations (including changes in phenology and range limits, community dynamics, and altered trophic interactions).

Third learning objective: develop hands-on experience in developing a climate change adaptation plan that could be implemented by a local, state, or national conservation agency.

COURSE STRUCTURE AND DYNAMICS

This is an advanced course targeted to upper-level undergraduate and graduate students with a background in ecology or biology. There will be significant expectations for independent work and active in-class participation. Class grading will consist of group projects and examinations.

GRADING COMPONENTS

Group Project Report and Presentation 35%

Climate Wizard Exercises 15%

Exam I 15%

Exam II 20%

Group Project Progress Reports (2) 5%

Class Participation and Weekly Quizzes 10%

EXAMINATIONS

There will be two exams that will consist of 10 multiple choice, 3 short answer questions, and 1 essay question. The two exams will focus primarily on the class units: *Trends and Changes* and *Ecological Impacts* (see lecture schedule).

ATTENDANCE POLICY

Attendance at all classes is mandatory. In accordance with UW-Madison policy, I will make every effort to avoid scheduling mandatory course requirements on dates when a religious observation may cause substantial numbers of students to be absent. In addition, I will extend reasonable consideration to accommodate you should your university-endorsed extracurricular activities (not including practice activities for performances or athletic events) conflict with class attendance requirements. **You must provide adequate and reasonable advance notice (>24 hrs. notice) so that I can ensure that an accommodation is made.**

You are required to be present at the beginning of the semester and to remain until the work of the semester is completed (which includes group projects and presentations). Exemptions from this must be given advanced notice from the instructor at the beginning of the course. Note that any excused or unexcused absences may have a negative impact on your final grade. It is your responsibility to be mindful of class attendance policies for each of your classes.

GROUP PROJECTS AND FINAL REPORTS

The central project of the course consists of a semester-long group exercise (groups of 3-4 students) with the goal of developing a **Climate Adaptation Plan** for a vulnerable species in Wisconsin. The core components of the plan will consist of a literature review, conceptual model, vulnerability assessment, and adaptation recommendations. The groups will give final presentations at the end of the class and complete a group final report. Peer evaluations will be done periodically throughout the course of the semester. **Full participation in the group project is mandatory and will be evaluated throughout the semester.** Note that any prolonged inability to work with your group may have a negative impact on your final grade.

LEARN@UW AND WEEKLY QUIZZES

Learn@UW will be used to post readings assignments, PowerPoint slides, and changes to the syllabus. There will be brief weekly online **quizzes** (4-5 questions) that are **mandatory**. These quizzes will be designed to gauge your level of understanding (and my ability to communicate) the week's topics. **You get full credit if you complete the quiz. Quizzes are posted every Friday by noon, and must be submitted by Monday at 12:00 p.m.**

There is a public course website at <http://labs.russell.wisc.edu/zuckerberg/teaching/> but this is mainly for advertising purposes. Please do not visit this site for information on the class.

ClimateWizard

ClimateWizard (www.climatewizard.org) enables you to access leading climate change information and visualize the impacts anywhere on Earth. This web-based program allows you to choose a state or country and assess how climate has changed over time and to project what future changes are predicted to occur in a given area. You will have 2 group exercises to learn how to view and interpret historic and predicted climate maps for anywhere in the world.

Missed Lectures and Medical Absences

Campus policy with respect to flu and other contagious diseases places a premium on minimizing the risk of spreading disease. If you are running a fever over 100°F with a cough or sore throat, stay home. Wait until 24 hours after your fever breaks before returning to class. **If you miss a lecture for any reason, you are responsible for the content covered in class.** I will not respond to Learn@UW-posted queries about missed lecture content.

Students with Disabilities: Requesting Reasonable Accommodations

UW–Madison supports the right of full and equal educational opportunity for all students. Disability should not be the basis for exclusion from the institution’s programs, activities and services. All students are entitled to an accessible, accommodating, supportive and nondiscriminatory institutional environment. It is therefore the policy of UW–Madison to provide reasonable accommodations to qualified students with disabilities.

Implementing reasonable and effective accommodations is a shared institutional and student responsibility. Students with disabilities who need accommodations should notify the institution of such need as early as possible, preferably before the beginning of a semester. Students who incur or recognize a disability for which an accommodation is needed during the semester should notify the institution immediately. For instructional or academic accommodations, students are encouraged to notify me directly. Students may also make accommodation requests through the McBurney Disability Resource Center or a duly designated departmental or college Access and Accommodation Resource Coordinator (AARC).

I will work with students to provide reasonable instructional or academic accommodations, although the student is responsible for self-advocacy. In addition, the McBurney Disability Resource Center is available as a resource and can assist students with accommodation issues, can recommend appropriate instructional or academic accommodations to faculty and can recommend or provide other needed reasonable accommodations.

PLAGIARISM POLICY

Academic Integrity is critical to the mission of the University of Wisconsin-Madison, a research institution with high academic standards. All members of the University community play a role in fostering an environment in which student learning is achieved in a fair, just and honest way. **I have zero tolerance for plagiarism.** You are expected to uphold the core values of academic

integrity which include honesty, trust, fairness, respect and responsibility. These core values, combined with finding one's purpose and passion and applying them in and out of classroom learning, produce students who become extraordinary citizens. This unique path of opportunities, created by each student, is commonly known as the Wisconsin Experience and impacts our campus community and beyond in significant and positive ways. The value of a University of Wisconsin degree depends on the commitment of our academic community to promote high levels of honesty and respect for the intellectual property of others.

The University of Wisconsin-Madison takes academic misconduct allegations very seriously. If I suspect a student has engaged in academic misconduct, I will contact the student and ask them to explain their work. If I still believe the student engaged in such an act after meeting with them, I will decide on a sanction (with outside consultation), which may include a zero on the assignment or exam, a lower grade in the course or failure in the course. The Dean of Student's Office will be informed and will contact the student about their rights. Repeated acts of academic misconduct may result in more serious actions such as probation or suspension. For tips on how to avoid plagiarism see the following link at the writing center.

<http://writing.wisc.edu/Handbook/QuotingSources.html>

LECTURE READINGS

Please see the additional document on Class Readings for full details of reading assignments. These are required readings that are meant to supplement the lecture material. You will be expected to know the information covered in these readings for the exams. All readings except for the textbook are available as PDF documents on Learn@UW. The main textbook is:

Title: Climate Change Biology

Author: Lee Hannah

Publisher: Academic Press

You may purchase the text through your favorite local or on-line bookseller.

FINAL GRADING SCHEMA

All grades for assignments and exams will be reported as a percentage and final grades will be calculated based on grading components above.

| LETTER GRADE | NUMERICAL RANGE |
|--------------|-----------------|
| A | 93-100% |
| AB | 88-92% |
| B | 83-87% |
| BC | 78-82% |
| C | 70-77% |
| D | 60-69% |
| F | 0-59% |

CLIMATE CHANGE ECOLOGY
(Forest and Wildlife Ecology 660)
Lecture Schedule FALL 2014

| Date | Week | Lecture | Class Unit | Lecture Topic |
|---------------|------|---------|--|---|
| 02-Sep | 1 | 1.A | Overview | Introduction to Course; Knowledge Survey |
| 04-Sep | 1 | 1.B | Trends and Changes | Climate System: A Brief Introduction |
| 09-Sep | 2 | 1.C | Trends and Changes | Changes in Temperature and Precipitation |
| 11-Sep | 2 | 1.D | Trends and Changes | Changes in Snow, Ice, and Extreme Events |
| 16-Sep | 3 | 1.E | Trends and Changes | Pleistocene Warming and Extinctions |
| 18-Sep | 3 | 1.F | Trends and Changes | Modeling Future Climate Change |
| 23-Sep | 4 | 1.G | Trends and Changes | WI Initiative on Climate Change Impacts |
| 25-Sep | | | <i>Exam 1 Trends and Changes</i> | |
| 30-Sep | 5 | 2.A | Ecological Impacts | Phenology and Life Histories |
| 02-Oct | 5 | 2.B | Ecological Impacts | Phenological Mismatch |
| 07-Oct | 6 | 2.C | Ecological Impacts | Population Dynamics, Stability, and Synchrony |
| 09-Oct | 6 | 2.D | Ecological Impacts | Biotic Interactions and Community Dynamics |
| 14-Oct | 7 | 2.E | Ecological Impacts | The Niche Concept |
| 16-Oct | 7 | 2.F | Ecological Impacts | Range Dynamics and Distributional Shifts |
| 21-Oct | 8 | 2.G | Ecological Impacts | Ecosystem Changes |
| 23-Oct | 8 | 2.H | Ecological Impacts | Biodiversity Changes |
| 28-Oct | 9 | 2.I | Ecological Impacts | Evolutionary Consequences |
| 30-Oct | 9 | 2.J | Ecological Impacts | Phenotypic Mismatch |
| 04-Nov | 10 | 2.K | Prediction | Bioclimatic Modeling |
| 06-Nov | 10 | 2.L | Prediction | Community Modeling |
| 11-Nov | | | <i>Exam 2 Ecological Impacts and Prediction</i> | |
| 14-Nov | 11 | 3.A | Adaptation | Ecological Monitoring and Management |
| 18-Nov | 12 | 3.B | Adaptation | Assisted Colonization |
| 20-Nov | 12 | 3.C | Adaptation | Conservation and Landscape Planning |
| 25-Nov | 13 | 3.D | Adaptation | Vulnerability Assessments |
| 27-Nov | 13 | | THANKSGIVING BREAK | |
| 02-Dec | 14 | 3.E | Adaptation | Communicating Climate Change |
| 04-Dec | 14 | 3.F | Adaptation | Communicating Climate Change |
| 10-Dec | 15 | | Group | Group Final Presentations |
| 12-Dec | 15 | | Group | Group Final Presentations |

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

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

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)

This online lecture, discussion and lab course is designed specifically for students enrolled in the Capstone Certificate in Geodesign. 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, more sustainable and resilient future. Topics include GIS, land information systems (LIS), and decision support systems for scenario planning, 3-D visualization and communication, suitability analysis, growth management, public participation, impact assessment and interactive dashboards, and monitoring change.

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

In order to take this course, students must be admitted into the Capstone Certificate in Geodesign Program; which requires a demonstrated basic knowledge of Geographic Information Systems (GIS). Students may demonstrate this knowledge through prior coursework, such as UW-Madison Geog 377 or equivalent and a portfolio. For specific program prerequisite competencies, please see program admittance requirements. If you do not have these competencies you must take an Introduction to GIS course before program admittance. The Capstone Certificate in Geodesign does not offer remedial GIS courses; however, please feel free to contact the program coordinator if you need remedial GIS course recommendations.

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

John Harrington (jaharrin@wisc.edu) Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com)

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?

Capstone Certificate in Geodesign

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 for the Capstone Certificate in Geodesign.

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 Land Arc 633: Geospatial Approaches to Conservation Design and Adaptation, Land Arc 671: GIS and Geodesign for Sustainability and Resiliency, and Land Arc 634: Geodesign 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

*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.*

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

The Capstone Certificate in Geodesign acknowledges that there are many ways to teach and apply geospatial theory, methods, and technology. In an effort to ensure that we were not duplicating or impinging upon existing course offerings we contacted the following departments that offer GIS courses and are part of the UW-Madison Geospatial Alliance: Civil and Environmental Engineering, Community and Environmental Sociology, Environmental Studies (Nelson Institute), Forestry and Wildlife Ecology, Geography, Geological Engineering, Geoscience, Soil Science, Urban and Regional Planning, and Zoology. Geography is of particular concern due to several levels and types of academic programs offered by the Department of Geography: an undergraduate major (BA/BS) in Cartography and Geographic Information Systems, a capstone (i.e., post-baccalaureate) certificate in Geographic Information Systems, and a MS- Cartography and Geographic Information Systems. We worked closely with Geography that these courses are distinct and provide niche training that does not negatively impact Geography's offerings. We concur with Geography that each of these programs are distinct from each other and provide particular training niches. Further detail will be provided in the forthcoming Capstone Certificate in Geodesign proposal resubmission.

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)
Geological Engineering (418)
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)

Doug Hadley, Senior Lecturer and Capstone Certificate in Geodesign Program Coordinator (dbhadley@wisc.edu)

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's education and professional and academic experience has been in the areas of landscape architecture, land use planning, and geographic information systems. He holds a BS from the Department of Landscape Architecture at Rutgers University, and an MA in Landscape Architecture from the Department of Landscape Architecture at UW-Madison. Doug has been an instructor in lecture and studio course, as well as hybrid and completely online courses for the past 8 years. Doug has taught courses that include both GIS basics and intermediate GIS.

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

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Justifications

Explain how this course contributes to strengthening your curriculum

This course is one of two foundation courses that are part of the proposed Capstone Certificate in Geodesign.

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. This course has three hours of lecture and instructor contact per week. Discussions, collaborative studio assignments, and readings total 6-9 hours per week. See the course schedule in the uploaded syllabus for additional details concerning how this course meets federal credit guidelines.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of the first semester in the Capstone Certificate in Geodesign proposed by Department of Landscape Architecture at UW-Madison. The Capstone Certificate is a fully online, fourteen credit program that requires taking five courses over the the course of a year.

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

GeodesignAPC Doc_Dec12_2013_JH..pdf

Doug_Hadley_CV_01102014.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?

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Instructor: Douglas Hadley

Course Overview

This online lecture, discussion and lab course is designed specifically for students enrolled in the Capstone Certificate in Geodesign. 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, more sustainable and resilient future. Topics include GIS, land information systems (LIS), and decision support systems for scenario planning, 3-D visualization and communication, suitability analysis, growth management, public participation, impact assessment and interactive dashboards, and monitoring change.

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.

Prerequisites

In order to take this course, students must be admitted into the Capstone Certificate in Geodesign Program; which requires a demonstrated basic knowledge of Geographic Information Systems (GIS). Students may demonstrate this knowledge through prior coursework, such as UW-Madison Geog 377 or equivalent and a portfolio. For specific program prerequisite competencies, please see program admittance requirements. If you do not have these competencies you must take an Introduction to GIS course before program admittance. The Capstone Certificate in Geodesign does not offer remedial GIS courses; however, please feel free to contact the program coordinator if you need remedial GIS course recommendations.

Books and Learning Resources

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. Other required and supplemental learning resources (e.g. readings, videos) available on D2L.

Course Format

Lectures and Discussion: Weekly lectures will present the current topic using engaged (i.e. flipped) classroom techniques. Students will engage with readings and other learning resources

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prior to participating in synchronous and asynchronous class participation. Each week selected students will lead class participation in lecture. Class participation grades are tied to lecture and discussion participation. Students are encouraged to participate in weekly synchronous discussions (days and times TBD). Students unable to participate in the synchronous discussions are required to participate using the D2L asynchronous discussion tools.

Participation in lecture is assessed on four tiers:

1. Engaged and Insightful (25 Points): Illustrates a synthesis of knowledge by relating previous knowledge and/or experience with the current topic. Demonstrates leadership in discussion to facilitate course objectives. Provides supporting references to support his/her perspective.
2. Applied (20 Points): Presents issues for discussion and actively responds to other students' comments. Comments demonstrate comprehension of course content, but lacks in critical or original thinking.
3. Passive (5 Points): Occasionally presents issues and comments during discussion. Feedback that demonstrates critical and original thinking is limited.
4. No Participation (0 Points): Does not participate or participation lacks association with the topic.

Quizzes: Quizzes are directly tied to lecture and assigned/required learning resources. Students will have two attempts in which to take each of five quizzes. Quizzes are designed as a student learning resource in which the student and instructor can evaluate and improve learning outcomes. Quizzes will be made available on D2L.

Exams: Two exams will be used to evaluate mastery of Geodesign competencies and learning outcomes. A midterm exam will cover topics 1-6. A final exam will cover topics 1-13. Students will have access to one attempt at each exam. Exams will be made available on D2L. Students may use their notes and learning resources in which to complete exams.

Collaborative Studio and Final Report/Presentation: Starting Week/Module 7, students will engage in a collaborative studio exercise. Teams, consisting of 3-4 students, will choose a relevant and timely topic in which to engage (e.g. farmland preservation, locating a new county park, siting a new wind farm). Students will create a plan that:

- Scopes out and explores geospatial issues related to the topic– What are the issues that are linked to the topic?
- Considers the public groups and citizens to engage and how to engage them geospatially – Who is potentially affected or potentially might affect the plan and should be engaged? How will you engage them with geospatial technology?
- Analyzes geospatial patterns and trends – What is where and why is it important?
- Develops a resource allocation scenario – What goes where?
- Evaluates the consequences of scenarios – What if? What happens?

A final report and presentation will introduce an audience to the topic or problem to solve and why it's important. The remainder of the report and presentation will address the bullet points above and conclude with recommendations. Teams shall schedule an initial meeting with the instructor to

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discuss the topic. Two more meetings shall be scheduled (one at week 9 and one in week 11 to discuss progress).

The report should include 12-15 double-spaced typed pages (11-point Times New Roman Font, normal 1-inch margins. The report should include maps of analyses and allocation scenarios. Maps are not included in the 12-15 pages. Maps should appear as full-pages (8.5" x11") or folded maps (11"x17").

Students will present using D2L and Blackboard Collaborate online chat room tools. Student will require audio/video streaming via high-speed internet.

Grading

| | |
|---|------------|
| Lecture 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/Presentation | 500 |
| Total Points | 1,000 |

Grading Scale

Final grades are based on the UW's standard grade scheme. Adjustments (e.g. a modified curve) may be made for course trends and natural breaks.

| <u>Percent</u> | <u>Letter Grade</u> |
|----------------|---------------------|
| 95-100 | A |
| 90-94 | AB |
| 85-89 | B |
| 80-84 | BC |
| 75-79 | C |
| 70-74 | D |
| <70 | F |

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Course Schedule

(9/2-5) *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).

Learning Resources

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>

Online Discussion

1. Define Geodesign.
2. Identify what the purpose of Geodesign is.
3. Asynchronous. 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. Asynchronous. 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.

(9/8-12) *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
2. Hideo Sasaki
3. Garrett Eckbo

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- | | | |
|---------------------|---------------------|------------------------|
| 4. Philip Lewis Jr. | 8. Fritz Steiner | 12. Lewis Mumford |
| 5. Ian McHarg | 9. Lewis Hopkins | 13. John Muir |
| 6. Carl Steinitz | 10. Jack Dangermond | 14. Frank Lloyd Wright |
| 7. Ben Niemann | 11. Aldo Leopold | |

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, San Diego, CA. Chapter 2. Land planning strategies evolve to face today's challenges.
2. Ndubusi, Forster. (2002). Ecological Planning. A Historical and Comparative Synthesis. John Hopkins University Press. Baltimore, MD. Introduction and Chapter 1.
3. Students select materials about each innovator.

Online Discussion

1. Select an innovator that you believe that you share something in common with (professional interest). You can select someone else, not identified on this list. Prepare a 10 minute synopsis that describes their contributions to Geodesign. Share your synopsis using online chat or asynchronous discussion board on D2L.
2. As a class, create an interactive timeline. Place your innovator in the timeline with your document attached.

Quiz 1. Questions on D2L

(9/15-19) 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)

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 9. The smart growth movement,

planning, and information technology. Chapter 10. Shaping a planning support system.

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. Chapters 1 & 2.

Online 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?

Quiz 2. Questions on D2L.

(9/22-26) 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.

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 11. Defining planning questions and functionality.
2. Brail, Richard. Klosterman, Richard. (2001). Planning Support Systems. Esri Press. Redlands, CA. Chapters 4, 9, 10, 11.
3. Vonk, Guido. Geertman, Stan. 2008. Improving the Adoption and Use of Planning Support Systems in Practice. *Applied Spatial Analysis* (2008) 1:153-173.

Optional Resources

1. Flaherty, Edward. (2012). Computers in the Design Process 1987-2005. A Short Historic Perspective. American Society of Landscape Architects.
2. Vonk, Guido, Stan Geertman, and Paul Schot. 2007. A SWOT analysis of planning support systems. *Environment and Planning* 39: 1699-1714.

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

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

(9/29-10/3)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. Describe the roles and importance of authoritative data and crowdsourced data in Geodesign.

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 4. Data, information technology and institutions: Building blocks for land planning. 5. Building the Wisconsin Land Information Program. 6. Status of the land information program. 7. Land records modernization: County success stories. 8. Wisconsin Land Information System: The dream of a statewide land information system.
2. 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.
3. Goodchild, Michael. (2007). Assertion and Authority: The Science of User Generated Geographic Content. University of California, Santa Barbara.

Optional Resources

1. http://www.opengeospatial.org/domain/gov_and_sdi#responsibility
2. http://www.opengeospatial.org/domain/geosciences_and_environment
3. <http://www.opengeospatial.org/domain/built>
4. 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

Online 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

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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 ever be considered authoritative? Under what conditions? If not authoritative – is VGI still useful?

Quiz 3. Questions on D2L.

(10/6-24) Module 6: Public Participation in Geodesign – Navigating Human Behaviors

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.

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 12.
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.

Optional Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 13.

Online 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.

(10/9-10) Midterm Examination

(10/13-17) Module 7: Scoping (Exploring) 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.

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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.

Learning Resources

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

Online 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?

Collaborative Studio

Final Project Assigned. Form groups of 3-4 students each and choose your topic of interest. Meet (virtual) with your instructor to discuss the topic.

The purpose of Geodesign at this stage (scoping/exploration) 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.

(10/20-24) Module 8: Designing the Study Methodology

Learning Outcomes

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.

Learning Resources

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

Online 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.

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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.

Quiz 4. Questions on D2L

(10/27-11/7) *Module 9: Analyze Patterns, Trends, Relationships*

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.

Learning Resource

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 15. Planning Analyst Module 2. Analyze.

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.

Teams to schedule Virtual Office Hours with instructor to discuss spatial analysis techniques. What is being measured (patterns, trends, relationships)? What data are available? What will be communicated?

(11/10-14) *Module 10: Allocate Scarce Lands and Resources.*

Learning Outcomes

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

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 16. Planning Analyst Module 3: Allocate.

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2. 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

Online Discussion

1. Compare and contrast various Geodesign strategies (i.e. gestalt, interactive, scenario-based, and agent-based). Consider citizen engagement. What are the benefits and drawbacks of each approach? How might that differ dependent upon your audience?

Collaborative Studio

The purpose of Geodesign at this stage is to make place-based decisions to allocate resources on the landscape. Consider your explorations and analyses then create an allocation scenario that identifies resources and their uses. Create a futures-based allocation scenario. Use a gestalt or scenario-based models to create the alternative future.

(11/17-21) Module 11: Evaluate Outcomes and Impacts

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.

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 17. Planning Analyst Module 4: Evaluate.
2. Edwards, Mary M. (2000). Community Guide to Development Impact Analysis. Wisconsin Land Use Research Program. Program on Agricultural Technology Studies. University of Wisconsin-Madison.

Online Discussion

1. What is the role of science in evaluating consequences of future change? What is the role of politics in evaluating consequences of future change? What else is necessary to engage in positive, sustainable, and resilient future change?

Collaborative Studio

The purpose of Geodesign at this stage is to evaluate alternative futures to compare and contrast impacts on systems resources – how many school children added, water supplies, sewerage capacity, potential soils impact, impact on the tax base. Determine what indicators your study should address and determine how to measure impacts.

Land Arch 630

Introduction to Geodesign

Teams shall schedule virtual office hours with the instructor to discuss progress.

Quiz 5. Questions on D2L

(11/24-12-5) Module 12: Carrying Out the Study

Learning Outcomes

1. Recognize Geodesign methods appropriate for certain social and professional circumstances.

Learning Resources

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

Online Discussion

1. Discuss the learning outcome as it relates to the various case studies described the Carl Steinitz.

Collaborative Studio

First round of presentations.

(12/8-19) Module 13: A Future for Geodesign – Gauging Success

Learning Outcomes

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

Learning Resources

1. Niemann, Bernard. J. et al. (2011). Citizen Planners: Shaping Communities with Spatial Tools. Esri Press, Redlands, CA. Chapter 18. Did better tools yield better results. 19. Through the gates: innovation and adoption in two counties. 20. Imagining the future.

Optional Resources

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

Online Discussion

1. Considering the book chapters and what you've learned in this course, discuss Geodesign barriers in the professional workplace and practice?

Collaborative Studio

Second round of presentations.

(12/15-19) Final Examination and Final Reports Due

New Course Proposal

Subject Landscape Architecture (520)

Status Under Review by School/College

Proposer Douglas B Hadley

Basic Information

What is the primary divisional affiliation of this course?

Interdivisional

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

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)

This course focuses on understanding and application of methods and technology used in the Geodesign framework using the following models: representation, process, evaluation, change, impact, and decision. Students write a methods focused, preliminary project proposal. Geodesign methods and technology are vast and continually evolving, but will be limited to industry standards: Esri ArcGIS Desktop, Esri CityEngine, Trimble SketchUp, and various open-source alternatives as needed (i.e. QGIS, Grass, etc). Students will be exposed to and may use, at their own discretion in coordination the instructor, other open-source alternatives on individual assignments when software and methods choices are at the their discretion (see assignment statements for specific requirements).

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

In order to take this course, students must be admitted into the Capstone Certificate in Geodesign Program; which requires a demonstrated basic knowledge of Geographic Information Systems (GIS). Students may demonstrate this knowledge through prior coursework, such as UWMadison Geog 377 or equivalent and a portfolio. For specific program prerequisite competencies, please see program admittance requirements. If you do not have these competencies you must take an Introduction to GIS course before program admittance. The Capstone Certificate in Geodesign does not offer remedial GIS courses; however, please feel free to contact the program coordinator if you need remedial GIS course recommendations.

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

John Harrington (jaharrin@wisc.edu), Douglas Hadley (dbhadley@wisc.edu), Howard Veregin (veregin@wisc.edu), Travis Flohr (Travis.Flohr@iecostudio.com)

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?

Capstone Certificate in Geodesign

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 for the Capstone Certificate in Geodesign.

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 Land Arc 633: Geospatial Approaches to Conservation Design and Adaptation, Land Arc 671: GIS and Geodesign for Sustainability and Resiliency, and Land Arc 634: Geodesign 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

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. Course learning objectives are mapped according to a modified Bloom's and Webb's Taxonomies of Learning. Upon completion of this course students will be able to perform the following in relation to Carl Steinitz's "Framework for Geodesign": 1. Determine appropriate methods in relation to each of the Geodesign framework models: representation, process, evaluation, change, impact, and decision. 2. Assemble data collection, data analysis, and visualization and communication for a variety of Geodesign project contexts. 3. Use various methods and tools available for use in the Geodesign process, particularly ArcGIS Desktop, Esri CityEngine, and SketchUP. 4. Create a critique of Geographic data capabilities and limitations in Geodesign. 5. Carry out methods and work related to: 5.1. Framing Geodesign design problems 5.2. Process models 5.3. Evaluation models 5.4. Change models 5.5. Impact models 5.6. Decision models 6. Critically evaluate their written, verbal, and graphical communication skills, within a Geodesign context. 7. Differentiate the pros and cons of each method and how to use it appropriately based on the type of data and the method's appropriateness for each phase of a Geodesign process. 8. Carry out data interoperability between various methods and technologies used to facilitate Geodesign methods. 9. Carry out advanced qualitative and quantitative design impact analyses. 10. Create design iterations and, evaluations, and impact analyses within ArcGIS Desktop, CityEngine, and SketchUP.

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

The Capstone Certificate in Geodesign acknowledges that there are many ways to teach and apply geospatial theory, methods, and technology. In an effort to ensure that we were not duplicating or impinging upon existing course offerings we contacted the following departments that offer GIS courses and are part of the UW-Madison Geospatial Alliance: Civil and Environmental Engineering, Community and Environmental Sociology, Environmental Studies (Nelson Institute), Forestry and Wildlife Ecology, Geography, Geological Engineering, Geoscience, Soil Science, Urban and Regional Planning, and Zoology. Geography is of particular concern due to several levels and types of academic programs offered by the Department of Geography: an undergraduate major (BA/BS) in Cartography and Geographic Information Systems, a capstone (i.e., post-baccalaureate) certificate in Geographic Information Systems, and a MS- Cartography and Geographic Information Systems. We worked closely with Geography that these courses are distinct and provide niche training that does not negatively impact Geography's offerings. We concur with Geography that each of these programs are distinct from each other and provide particular training niches. Further detail will be provided in the forthcoming Capstone Certificate in Geodesign proposal resubmission.

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)
Geological Engineering (418)
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)

Travis Flohr, Faculty Associate, UW-Madsion (tflohr@wisc.edu)

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 is a faculty associate in the department of Landscape Architecture at the University of Wisconsin-Madison. He is currently co-developing a capstone certification program in Geodesign for which he is also designing curriculum goals and certification courses. Additionally, Travis is also pursuing a PhD at the University of Colorado in Design and Planning, specifically in the sustainability and healthy environments track. After earning his bachelor degree in Landscape Architecture at The Pennsylvania State University, Travis worked as a registered landscape architect (RLA) in Pennsylvania for six years. Following his professional career, Travis earned a Masters of Science in Landscape

Architecture at The Pennsylvania State University. As a landscape architect and planner, his research focuses on qualitative and quantitative methods for spatially evaluating performance of landscape architectural designs and urban and regional planning policy. He is particularly interested in understanding design and policies impacts related to ecosystem services, green infrastructure, and natural hazards. To understand design within complex social and natural systems, Travis uses qualitative and quantitative research methods, including spatial statistics and modeling. Geodesign provides a framework for his research application towards projects that foster healthy balanced development and social justice issues across the urban to rural transect. Travis is interested in embedding his research into curriculum design, while increasing pedagogical integrity. Travis bases his pedagogical integrity on the past work of Webb, Bloom, and others taxonomies of learning objectives. Travis is currently developing the curriculum for the Capstone Certificate in Geodesign Program at University of Wisconsin-Madison; building on his past curricula work for the Masters of Urban and Regional Planning and Masters of Landscape Architecture departments at the University of Colorado Denver and the Environmental Design program at the University of Colorado Boulder. He is a co-developer of screen-capture GIS tutorials that augment technological instruction within various courses. Travis has been recognized for his work and contributions to landscape architecture and planning. The Landscape Architecture Foundation selected Travis as the Penn State Frederick Law Olmsted Scholar in recognition of his leadership and vision, engagement with current issues, and critical thinking. His other awards include: second place at the 2010 Penn State Graduate Exhibition in the Social And Behavioral Sciences category; 2010 Merit Award Winner from the American Society of Landscape Architecture; and 2010 Graduate Student Creative Achievement Award Winner from the College of Arts and Architecture.

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

Land_Arc_631_Geodesign_Methods_03212014.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 Capstone Certificate in Geodesign.

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. This course has three hours of lecture and instructor contact per week. Discussions, collaborative studio assignments, and readings totaling 6-9 hours per week. See the course schedule in the uploaded syllabus for additional details concerning how this course meets federal credit guidelines.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of the first semester in the Capstone Certificate in Geodesign proposed by Department of Landscape Architecture at UW-Madison. The Capstone Certificate is a fully online, fourteen credit program that requires taking five courses over the course of a year.

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

Travis_Flohr-UW_Geodesign_CV.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 METHODS

University of Wisconsin

(3 Credits)
Fall 2014

INSTRUCTOR

Travis Flohr, Professor Associate
Department of Landscape Architecture
University of Wisconsin-Madison
M25Q Agricultural Hall
1450 Linden Drive
Madison WI 53706
tflohr@wisc.edu
Ph: 608.263.7300
www.iecostudio.com

COURSE MEETING TIMES

Asynchronous/Synchronous fully online – please see the course schedule for details

COURSE PREREQUISITES

In order to take this course, students must be admitted into the Capstone Certificate in Geodesign Program; which requires a demonstrated basic knowledge of Geographic Information Systems (GIS). Students may demonstrate this knowledge through prior coursework, such as UW-Madison Geog 377 or equivalent and a portfolio. For specific program prerequisite competencies, please see program admittance requirements. If you do not have these competencies you must take an Introduction to GIS course before program admittance. The Capstone Certificate in Geodesign does not offer remedial GIS courses; however, please feel free to contact the program coordinator if you need remedial GIS course recommendations.

COURSE TEXTS

Students are required to purchase the following texts:

Steinitz Carl 2012. *A framework for geodesign changing geography by design*. Redlands, CA: ESRI Press. (This book is available for free, as an electronic download, at the following link: <http://www.livrespdf.com/books-PDF-28647662/>).

Mitchell, Andy 2012. *The Esri guide to GIS analysis: Modeling suitability, movement, and interaction*. Redlands, CA: Esri Press.

COURSE READINGS

Students will be provided the following readings on D2L:

Agrawala, Maneesh, Wilmot Li, and Floraine Berthouzoz. 2011. "Design Principles for Visual Communication." *Communications of the ACM* 54 (4) (April 1): 60.
doi:10.1145/1924421.1924439. <http://portal.acm.org/citation.cfm?doid=1924421.1924439>.

Blaser, Andreas D, Monika Sester, and Max J Egenhofer. 2000. "Visualization in an Early Stage of the Problem-Solving Process in GIS." *Computers & Geosciences* 26 (1) (February): 57–66.
doi:10.1016/S0098-3004(99)00034-5.
<http://linkinghub.elsevier.com/retrieve/pii/S0098300499000345>.

Carr, Rebecca, and Mary Harrington. 2011. "Effective Communication Through Visual Design: Tables and Charts." <http://aaude.org/atd>.

Creswell, John W. 2009 *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Third Edition. Thousand Oaks CA: Sage Publications Inc. Chapter 8 and 9.

Few, Stephen. "Information Dashboard Design: The Effective Visual Communication of Data."

Forester, John. 1982. "Planning in the Face of Power." *Journal of the American Planning Association* 48 (1) (March 31): 67–80. doi:10.1080/01944368208976167.
<http://www.tandfonline.com/doi/abs/10.1080/01944368208976167>

Harrington, Mary, and Rebecca Carr. 2009. "Twelve Tips for Creating Effective Presentations". University of Mississippi. <http://aaude.org/documents/public/air2010.pdf>.

Harrower, Mark. 2003. "Tips for Designing Better Animated Maps". Madison, Wisconsin.

Ligtenberg, Arend, Bauke de Vries, Rona Vreenegoor, and Jandirk Bulens. 2010. "SimLandScape, a Sketching Tool for Collaborative Spatial Planning." *URBAN DESIGN International* 16 (1) (September 15): 7–18. doi:10.1057/udi.2010.17. <http://www.palgrave-journals.com/doi/finder/10.1057/udi.2010.17>.

Malczewski, Jacek. 2004. "GIS-Based Land-Use Suitability Analysis: A Critical Overview." *Progress in Planning* 62 (1) (July): 3–65. doi:10.1016/j.progress.2003.09.002.
<http://linkinghub.elsevier.com/retrieve/pii/S0305900603000801>.

Ortiz, Santiago. 2012. "45 Ways to Communicate Two Quantities". Visual.ly.
<http://blog.visual.ly/45-ways-to-communicate-two-quantities/>.

Rosero-Bixby, Luis. 2004. "Spatial Access to Health Care in Costa Rica and Its Equity: A GIS-Based Study." *Social Science & Medicine* 58 (7): 1271–1284. doi:10.1016/S0277-9536(03)00322-8. <http://www.sciencedirect.com/science/article/pii/S0277953603003228>.

Williams, Kathryn J H, Rebecca M Ford, Ian D Bishop, Daniel Loiterton, and John Hickey. 2007. "Realism and Selectivity in Data-Driven Visualisations: A Process for Developing Viewer-Oriented Landscape Surrogates." *Landscape and Urban Planning* 81 (3): 213–224.
<http://www.sciencedirect.com/science/article/pii/S0169204606002659>.

Yeh, A G-o. 1999. "Urban Planning and GIS." In *Geographical Information Systems: Principles and Applications*, edited by PA Longley, M Goodchild, D Maguire, and D Rhind, 2nd ed., 877–888. New York, New York: John Wiley.

COURSE DESCRIPTION AND DELIVERY FORMAT

Course Description

“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. The effect of Geodesign is to create a better, sustainable future for life on earth.

This course focuses on understanding and application of methods and technology used in the Geodesign framework using the following models: representation, process, evaluation, change, impact, and decision. Students write a methods focused, preliminary project proposal. Geodesign methods and technology are vast and continually evolving, but will be limited to industry standards: Esri ArcGIS Desktop, Esri CityEngine, Trimble SketchUp, and various open-source alternatives as needed (i.e. QGIS, Grass, etc). Students will be exposed to and may use, at their own discretion in coordination the instructor, other open-source alternatives on individual assignments when software and methods choices are at the their discretion (see assignment statements for specific requirements).

Course Delivery Format

This fully, online course will use a combination of the following formats asynchronous topical lectures, asynchronous method application lectures, synchronous lecture discussions, videoconference office hours, and online lab projects. All course material will be delivered and submitted via the course Desire2Learn (D2L) site. Students will be expected to also participate via appropriate D2L and Blackboard Collaborate technologies, as discussed in the course schedule. Weekly topical, lecture material will be presented using pre-recorded online lectures and be paired with supplemental material in the form of web-links and readings. Students will engage in guided online discussions using group forums and complete nine lab module assignments focused on Geodesign methodologies related to steps within Steiner’s Framework for Geodesign. Module assignments will be submitted as Adobe PDFs and include images, maps, and written text. Please see individual module statements for further detail and required submittal guidelines.

Students are also required to participate in at least one of three synchronous videoconferences using Blackboard Collaborate, the instructor will set up, facilitate, and notify student one week prior to each videoconference with the required login information. Web conferences will consist of live in person video discussions/lectures revolving around weekly topics, issues in application and critiques of students’ past lab assignments. Students must also complete a minimum of two

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

individual videoconference office hours with the instructor during the semester (after week four and before week 13), regarding student work and course concerns.

COURSE LEARNING OBJECTIVES

Course learning objectives are mapped according to a modified Bloom's and Webb's Taxonomies of Learning.

Upon completion of this course students will be able to perform the following in relation to Carl Steinitz's "Framework for Geodesign":

1. **Determine** appropriate methods in relation to each of the Geodesign framework models: representation, process, evaluation, change, impact, and decision.
2. **Assemble** data collection, data analysis, and visualization and communication for a variety of Geodesign project contexts.
3. **Use** various methods and tools available for use in the Geodesign process, particularly ArcGIS Desktop, Esri CityEngine, and SketchUP.
4. **Create** a critique of Geographic data capabilities and limitations in Geodesign.
5. **Carry out** methods and work related to:
 - 5.1. Framing Geodesign design problems
 - 5.2. Process models
 - 5.3. Evaluation models
 - 5.4. Change models
 - 5.5. Impact models
 - 5.6. Decision models
6. **Critically** evaluate their written, verbal, and graphical communication skills, within a Geodesign context.
7. **Differentiate** the pros and cons of each method and how to use it appropriately based on the type of data and the method's appropriateness for each phase of a Geodesign process.
8. **Carry out** data interoperability between various methods and technologies used to facility Geodesign methods.
9. **Carry out** advanced qualitative and quantitative design impact analyses.
10. **Create** design iterations and, evaluations, and impact analyses within ArcGIS Desktop, CityEngine, and SketchUP.

COURSE STUDENT EVALUATION

There will be no exams in this course. With the exception of several topical 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 course modules: Representative Models, Process Models, Evaluation Models, Change Models, Impact Models, and Decision Models. In addition to completing discussions and module projects students will provide written summaries of their weekly projects. Please see the course assignments, grading scale, and individual module statements for further evaluation detail.

COURSE ASSIGNMENTS AND SCHEDULE

Total Possible Course Points: 300 Points

Please see the module statements for more detail regarding assignment requirements and evaluation details.

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| 1 | <p><i>Module 1: Methods in Geodesign</i></p> <p>During module one, students will learn various methods and technologies used and applied within the Geodesign Framework including, but not limited to: traditional quantitative and qualitative research methods, geospatial methods, and associated technologies. Students will be asked to discuss these ideas and methods using guided forum question posts. Following this module, students will be able to:</p> <ul style="list-style-type: none"> • Determine appropriate methods related to the Geodesign framework • Carry out methods related to framing Geodesign design problems. | 10 | 9 |
| | <p><i>Module 1: Lectures</i></p> <ul style="list-style-type: none"> • Course introduction, introduction to Geodesign methods and technology | | 1.00 |
| | <ul style="list-style-type: none"> • 2 – 15 minute method application demonstration lectures | | 0.50 |
| | <p><i>Module 1: Readings</i></p> <ul style="list-style-type: none"> • Steinitz Carl 2012. <i>A Framework for Geodesign changing Geography by Design</i>. Redlands, CA: ESRI Press. Chapter 3, 4, 5 and 6. | | 0.75 |
| | <ul style="list-style-type: none"> • Mitchell, Andy 2012. <i>The Esri guide to GIS analysis: Modeling suitability, movement, and interaction</i>. Redlands, CA: Esri Press. Chapter 1. | | 0.25 |
| | <ul style="list-style-type: none"> • Creswell, John W. 2009 <i>Research Design: Qualitative, Quantitative and Mixed Methods Approaches</i>. Third Edition. Thousand. Oaks CA: Sage Publications Inc. Chapter 8 and 9. | | 0.75 |
| | <p><i>Module 1: Assignments (see module statement for more detail)</i></p> <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. what are social justice issues regarding Geodesign methods, determine appropriate methods and technologies for each step of the framework, etc. | 5 | 2.75 |
| | <ul style="list-style-type: none"> • Participate in setting up and playing a ‘key stakeholder’ in a public participation process that frames Geodesign design problems. The instructor will serve as moderator and provide each student with a ‘key stakeholder’ definition. Forum discussion. | 5 | 3.00 |
| | | | |
| | | | |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| | <p><i>Module 2: Framing the Question and Representation Model Methods and Techniques</i></p> <p>During module two, students will learn various methods and technologies used and applied within geodesign question framing and representation models, with particular emphasis on applying representation methods using ArcGIS Desktop. Following this module, students will be able to:</p> <ul style="list-style-type: none"> • Differentiate between appropriate representation models • Assemble data for use in representation models within various prescribed Geodesign contexts • Use ArcGIS Desktop to create representation models • Critically evaluate data representation models | 20 | 11 |
| | <p><i>Module 2: Lectures</i></p> <ul style="list-style-type: none"> • Framing the question and representation models • 5 – 12 minute method application demonstration lectures | | 1.00 1.00 |
| 2 | <p><i>Module 2: Readings</i></p> <ul style="list-style-type: none"> • Williams, Kathryn J H, Rebecca M Ford, Ian D Bishop, Daniel Loiterton, and John Hickey. 2007. "Realism and Selectivity in Data-Driven Visualisations: A Process for Developing Viewer-Oriented Landscape Surrogates." <i>Landscape and Urban Planning</i> 81 (3): 213–224. http://www.sciencedirect.com/science/article/pii/S0169204606002659. • Rosero-Bixby, Luis. 2004. "Spatial Access to Health Care in Costa Rica and Its Equity: A GIS-Based Study." <i>Social Science & Medicine</i> 58 (7): 1271–1284. doi:10.1016/S0277-9536(03)00322-8. http://www.sciencedirect.com/science/article/pii/S0277953603003228. • Yeh, A G-o. 1999. "Urban Planning and GIS." In <i>Geographical Information Systems: Principles and Applications</i>, edited by PA Longley, M Goodchild, D Maguire, and D Rhind, 2nd ed., 877–888. New York, New York: John Wiley. | | 0.75 0.75 0.75 |
| | <p><i>Module 2: Assignments (see module statement for more detail)</i></p> <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. what are social justice issues regarding representation models, determine appropriate methods and technologies for representation models, etc. • Create and critique a series of four maps for described representation models. Instructor will provide comments and feedback on rough drafts and final submissions. | 10 10 | 3.00 3.75 |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| 3 | <i>Synchronous Lecture Attendance²</i> | 5 | 1 |
| | <i>Module 3: Process Model Methods and Techniques</i> During module three, students will learn various methods and technologies related to process models, with particular emphasis on applying thematic and temporal processes methods using ArcGIS Desktop. Following this module, students will be able to: | | |
| | <ul style="list-style-type: none"> • Create thematic and temporal maps, including animated temporal maps • Carry out process modeling • Critique process model methods • Differentiate between types of process models | 20 | 11 |
| | <i>Module 3: Lectures</i> | | |
| | <ul style="list-style-type: none"> • Process model methods and techniques | | 1.00 |
| | <ul style="list-style-type: none"> • 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 3: Readings</i> | | |
| | <ul style="list-style-type: none"> • Harrower, Mark. 2003. "Tips for Designing Better Animated Maps". Madison, Wisconsin. | | 0.25 |
| 3 | <ul style="list-style-type: none"> • Ortiz, Santiago. 2012. "45 Ways to Communicate Two Quantities". Visual.ly. http://blog.visual.ly/45-ways-to-communicate-two-quantities/. | | 0.25 |
| | <ul style="list-style-type: none"> • Harrington, Mary, and Rebecca Carr. 2009. "Twelve Tips for Creating Effective Presentations". University of Mississippi. http://aaude.org/documents/public/air2010.pdf. | | 0.25 |
| | <ul style="list-style-type: none"> • Agrawala, Maneesh, Wilmot Li, and Floraine Berthouzoz. 2011. "Design Principles for Visual Communication." <i>Communications of the ACM</i> 54 (4) (April 1): 60. doi:10.1145/1924421.1924439. http://portal.acm.org/citation.cfm?doid=1924421.1924439. | | 0.50 |
| | <ul style="list-style-type: none"> • Carr, Rebecca, and Mary Harrington. 2011. "Effective Communication Through Visual Design: Tables and Charts." http://aaude.org/atd. | | 0.25 |
| | <ul style="list-style-type: none"> • Few, Stephen. "Information Dashboard Design: The Effective Visual Communication of Data." | | 0.50 |

Module 3: Assignments (see module statement for more detail)

² Students are required to participate in at least one of three synchronous videoconferences using Blackboard Collaborate, the instructor will set up, facilitate, and notify student one week prior to each videoconference with the required login information.

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. critiquing data communication methods, comment on best practices, critique previous weeks maps, etc. | 8 | 2.75 |
| | <ul style="list-style-type: none"> Create two thematic models, two animated models, and two infographics related communicating summary points about your two maps. Provide a self-critique. Instructor will provide comments and feedback on rough drafts and final submissions. | 12 | 4.25 |
| 4 | <i>Video Conference Office Hour Opportunities Begin – (5 Points Each)³</i> | 10 | 30 |
| | <i>Module 4: Evaluation Model Methods and Techniques</i> During module four, students will learn about the various methods and technologies related to evaluation models, with particular emphasis on applying design suitability modeling using ArcGIS Desktop. Following this module, students will be able to: <ul style="list-style-type: none"> Create a critical perception of suitability analyses Differentiate between various suitability analysis techniques Carry out a suitability analysis for given design program elements Critically evaluate their suitability analysis | 25 | 12 |
| | <i>Module 4: Lectures</i> <ul style="list-style-type: none"> Evaluation modeling 5 – 12 minute method application demonstration lectures | | 1.00 1.00 |
| 4 | <i>Module 4: Readings</i> <ul style="list-style-type: none"> Malczewski, Jacek. 2004. “GIS-Based Land-Use Suitability Analysis: A Critical Overview.” <i>Progress in Planning</i> 62 (1) (July): 3–65. doi:10.1016/j.progress.2003.09.002. http://linkinghub.elsevier.com/retrieve/pii/S0305900603000801. Mitchell, Andy 2012. <i>The Esri guide to GIS analysis: Modeling suitability, movement, and interaction</i>. Redlands, CA: Esri Press. Chapter 2 | | 0.50 1.00 |
| | <i>Module 4: Assignments (see module statement for more detail)</i> <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. critiquing evaluation model methods, comment on best practices, community versus expert values, etc. Create an evaluation model. Instructor will provide comments and feedback on rough drafts and final submissions. | 2.5 22.5 | 1.00 7.50 |
| 5 - 6 | <i>Module 5: Change Model Methods and Techniques I</i> During module five, students will learn about the various methods | 45 | 22 |

³ Students must complete a minimum of two individual videoconference office hours with the instructor during the semester (after week four and before week 13).

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| | and technologies related to change models, with particular emphasis on applying design and ways of designing using ArcGIS Desktop. Following this module, students will be able to: <ul style="list-style-type: none"> • Determine appropriate methods for change modeling • Use methods related to change modeling • Create a series of 2D conceptual change model and design iterations alternatives within given ‘key stakeholder’ definitions • Carry out interoperability methods for change modeling • Create metadata for your change models | | |
| | <i>Module 5: Lectures (unit 5)</i> <ul style="list-style-type: none"> • Change Models and Techniques | | 1.00 |
| | <ul style="list-style-type: none"> • 3 – 10 minute method application demonstration lectures | | 0.50 |
| | <i>Module 5: Readings (unit 5)</i> <ul style="list-style-type: none"> • Blaser, Andreas D, Monika Sester, and Max J Egenhofer. 2000. “Visualization in an Early Stage of the Problem-Solving Process in GIS.” <i>Computers & Geosciences</i> 26 (1) (February): 57–66. doi:10.1016/S0098-3004(99)00034-5. http://linkinghub.elsevier.com/retrieve/pii/S0098300499000345. | | 0.50 |
| 5 | <ul style="list-style-type: none"> • Ligtenberg, Arend, Bauke de Vries, Rona Vreenegoor, and Jandirk Bulens. 2010. “SimLandScape, a Sketching Tool for Collaborative Spatial Planning.” <i>URBAN DESIGN International</i> 16 (1) (September 15): 7–18. doi:10.1057/udi.2010.17. http://www.palgrave-journals.com/doi/10.1057/udi.2010.17. | | 0.50 |
| | <i>Module 5: Assignments (unit 5) (see module statement for more detail)</i> <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. critiquing design models, tools, and methods, comment on best practices, determine future areas of interest, create metadata requirements, etc. | 8 | 3 |
| | <ul style="list-style-type: none"> • Create three design scenario alternatives, including appropriate attribute data, metadata, and symbology based on provided parameters. Create a summary table and visuals for each design scenario. Instructor will provide comments and feedback on rough drafts and final submissions. | 17.5 | 8.0 |
| | <i>Module 5: Lectures (unit 6)</i> <ul style="list-style-type: none"> • n/a | | |
| | <i>Module 5: Readings (unit 6)</i> <ul style="list-style-type: none"> • n/a | | |
| 6 | <i>Module 5: Assignments (unit 6) (see module statement for more detail)</i> <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. addressing issues related to module 5 unit 5 assignments. | 2 | 1.00 |
| | <ul style="list-style-type: none"> • Revise your three designs from module 5 unit 5, per instructor comments. Create two additional design scenario alternatives, including appropriate attribute data, metadata, and symbology | 17.5 | 7.5 |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| | based on provided parameters. Create a summary table and visuals for each additional design scenario. Instructor will provide comments and feedback on rough drafts and final submissions. | | |
| | <i>Module 6: Impact Model Methods and Techniques I</i> | | |
| | During module six, students will learn about the various methods and technologies related to impact models, with particular emphasis on applying impact measures for both existing and designed conditions. Following this module, students will be able to: | | |
| 7-8 | <ul style="list-style-type: none"> • Determine appropriate methods for impact modeling • Use methods related to impact modeling • Create a series of 2D impact model and evaluating module 5's design iterations • Carry out interoperability methods for impact modeling • Create impact model metrics | 45 | 22 |
| | <i>Module 6: Lectures (unit 7)</i> | | |
| | • Impact Models: Conceptual Impacts | | 1.00 |
| | • 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 6: Readings (unit 7)</i> | | |
| | • http://www.crrw.utexas.edu/gis/gishydro06/WaterQuality/HSPF/tutorials/3-ApplyingArcHSPFPFM.htm | | 0.25 |
| | • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/why.html | | 0.125 |
| | • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/how%20works.html | | 0.125 |
| | • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/limits.htm | | 0.125 |
| | • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/runoff.htm | | 0.125 |
| | • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/hsg.html | | 0.25 |
| 7 | <ul style="list-style-type: none"> • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cuppy_mcclure.htm • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cm_study_area.htm • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cm_data.htm • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cm_landuse_change.htm • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cm_results.htm • https://engineering.purdue.edu/mapserve/LTHIA7/documentation/case_studies/cm_minimize.htm | | 1.25 |
| | <i>Module 6: Assignments (unit 7) (see module statement for more detail)</i> | | |
| | • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. revolving around impact models, rational versus qualitative, methods for impact models, communication of impact models, etc. | 2 | 1.00 |
| | • Create an existing conditions impact assessment given the | 15.5 | 6.00 |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| | parameters of the module assignment statement, using model builder in order to run it quickly in module 6 unit 8. Also, create appropriate charts, graphs, and/or infographics. Instructor will provide comments and feedback on rough drafts and final submissions. | | |
| | <i>Module 6: Lectures (unit 8)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 6: Readings (unit 8)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 6: Assignments (unit 8) (see module statement for more detail)</i> | | |
| 8 | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. critiquing and discussing the different methodologies used in module 6 unit 7 assignment submissions. | 2.5 | 1.25 |
| | <ul style="list-style-type: none"> Create impact assessment of all five of your designs; use module 5 unit 5 and 6 assignments/designs. Also, create appropriate charts, graphs, and/or infographics. Instructor will provide comments and feedback on rough drafts and final submissions. | 25 | 9.75 |
| | <i>Module 7: Change Model Methods and Techniques II</i> | | |
| | During module seven, students will learn various methods and technologies related to 3D change models, with particular emphasis on applying 3D design using CityEngine. Following this module, students will be able to: | | |
| 9-12 | <ul style="list-style-type: none"> Determine appropriate methods for 3D change models Assemble data for 3D change models Differentiate between appropriate 3D change model methods Use various 3D change model methods Carry out 3D change model methods Create 3D change model design iterations | 65 | 48 |
| 9 | <i>Module 7: Lectures (unit 9)</i> | | |
| | <ul style="list-style-type: none"> 3D Change Models | | 1.00 |
| | <ul style="list-style-type: none"> 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 7: Readings (unit 9)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 7: Assignments (unit 9) (see module statement for more detail)</i> | | |
| | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. revolving around 3D change models, methods for 3D change models, data needs, etc. | 1.0 | 1.00 |
| | <ul style="list-style-type: none"> Create a 3D base map, including appropriate attribute data, metadata, rules, and symbology based on provided parameters. Create a summary table and visuals for existing conditions. Instructor will provide comments and feedback on rough drafts and final submissions. | 15.0 | 8.5 |

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| 10 | <i>Synchronous Lecture Attendance⁴</i> | 5 | 1 |
| | <i>Module 7: Lectures (unit 10)</i> | | |
| | <ul style="list-style-type: none"> 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 7: Readings (unit 10)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 7: Assignments (unit 10) (see module statement for more detail)</i> | | |
| 10 | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. revolving around 3D change models, rules for designing 3D change models. | 1.0 | 1.00 |
| | <ul style="list-style-type: none"> Create two 3D design rule sets, including appropriate attribute data, metadata, rules, and symbology based on provided parameters. Instructor will provide comments and feedback on rough drafts and final submissions. | 15.0 | 8.0 |
| | <i>Module 7: Lectures (unit 11)</i> | | |
| | <ul style="list-style-type: none"> 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 7: Readings (unit 11)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 7: Assignments (unit 11) (see module statement for more detail)</i> | | |
| 11 | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. revolving around 3D change models, issues in 3D change modeling, etc. | 1.0 | 0.75 |
| | <ul style="list-style-type: none"> Create a 3D design, including appropriate attribute data, metadata, rules, and symbology based on provided parameters. Instructor will provide comments and feedback on rough drafts and final submissions. | 15.0 | 10.00 |
| | <i>Module 7: Lectures (unit 12)</i> | | |
| | <ul style="list-style-type: none"> 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 7: Readings (unit 12)</i> | | |
| | <ul style="list-style-type: none"> n/a | | |
| | <i>Module 7: Assignments (unit 12) (see module statement for more detail)</i> | | |
| 12 | <ul style="list-style-type: none"> Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. revolving around 3D change models, issues in 3D change modeling, etc. | 1.0 | 0.75 |
| | <ul style="list-style-type: none"> Create a 2nd 3D design, including appropriate attribute data, metadata, rules, and symbology based on provided parameters. Instructor will provide comments and feedback on rough drafts and final submissions. | 15.0 | 10.00 |
| <hr/> | | | |
| 13-14 | <i>Module 8: Impact Model Methods and Techniques II</i> During module eight, students will learn various methods and technologies related to 3D impact models, with particular emphasis on applying impact measures in 3D using CityEngine. Following this module, students will be able to: | 45 | 20 |

⁴ Students are required to participate in at least one of three synchronous videoconferences using Blackboard Collaborate, the instructor will set up, facilitate, and notify student one week prior to each videoconference with the required login information.

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|--|---------------------|-------------------------|
| | <ul style="list-style-type: none"> • Determine appropriate methods for 3D impact models • Use 3D impact model methods • Carry out a 3D impact model • Create a 3D impact model | | |
| | <i>Module 8: Lectures (unit 13)</i> | | |
| | <ul style="list-style-type: none"> • 3D Impact Model Methods | | 1.00 |
| | <ul style="list-style-type: none"> • 5 – 12 minute method application demonstration lectures | | 1.00 |
| | <i>Module 8: Readings (unit 13)</i> | | |
| | <ul style="list-style-type: none"> • n/a | | |
| | <i>Module 8: Assignments (unit 13) (see module statement for more detail)</i> | | |
| 13 | <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. determining appropriate 3D impact model methods, pros and cons of each method, and determine appropriate 3D metrics, etc. | 2.0 | 1.00 |
| | <ul style="list-style-type: none"> • Create an existing conditions 3D impact assessment given the parameters of the module assignment statement; also, create appropriate charts, graphs, and/or infographics. Instructor will provide comments and feedback on rough drafts and final submissions. | 15.5 | 6.00 |
| 14 | <i>Synchronous Lecture Attendance⁵</i> | 5 | 1 |
| | <i>Module 8: Lectures (unit 14)</i> | | |
| | <ul style="list-style-type: none"> • n/a | | |
| | <i>Module 8: Readings (unit 14)</i> | | |
| | <ul style="list-style-type: none"> • n/a | | |
| | <i>Module 8: Assignments (unit 14) (see module statement for more detail)</i> | | |
| 14 | <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. critiquing and discussing the different methodologies used in module 8 unit 13 assignment submissions. | 2.0 | 1.00 |
| | <ul style="list-style-type: none"> • Create impact assessment of all two of your designs; use module 7 unit 11 and 12 assignments/designs. Also, create appropriate charts, graphs, and/or infographics. Instructor will provide comments and feedback on rough drafts and final submissions. | 26.5 | 10.00 |
| <hr/> | | | |
| | <i>Module 9: Decision Models and Course Recap</i> | | |
| | During module nine, students will learn about various visualization technologies used in Geodesign and recap the entire course. Following this module, students will be able to: | | |
| 15 | <ul style="list-style-type: none"> • Carry out decision models • Differentiate the pros and cons of each method presented within the context of the course and each step of the Geodesign framework • Critically evaluate their written, verbal, and graphical | 10 | 9 |

⁵ Students are required to participate in at least one of three synchronous videoconferences using Blackboard Collaborate, the instructor will set up, facilitate, and notify student one week prior to each videoconference with the required login information.

| <i>(Unit)</i> | <i>Module Description</i> | <i>Total Points</i> | <i>Total Time (hrs)</i> |
|---------------|---|---------------------|-------------------------|
| | communication skills, within a Geodesign context | | |
| | <ul style="list-style-type: none"> • Create a critique of Geographic data capabilities and limitations | | |
| | <i>Module 9: Lectures (unit 15)</i> | | |
| | <ul style="list-style-type: none"> • Decision models and course review | | 1.00 |
| | <i>Module 9: Readings (unit 15)</i> | | |
| | <ul style="list-style-type: none"> • Forester, John. 1982. "Planning in the Face of Power." <i>Journal of the American Planning Association</i> 48 (1) (March 31): 67–80. doi:10.1080/01944368208976167. http://www.tandfonline.com/doi/abs/10.1080/01944368208976167 | | 1.00 |
| | <i>Module 9: Assignments (unit 15) (see module statement for more detail)</i> | | |
| | <ul style="list-style-type: none"> • Guided discussion forum posts: students and the instructor will participate in forum discussions, e.g. decision model techniques, how to achieve consensus, and optimization decision models versus Delphi decision models, levels of governance and review, etc. | 5 | 4.00 |
| | <ul style="list-style-type: none"> • Post two examples of their 'best' work to critique and two examples of work they 'struggled' with to critiques. Instructor and students then post feedback and responses to each students work. The instructor will serve as moderator and provide each student with feedback. | 5 | 3.00 |

COURSE GRADING POLICY

Course Grading Rubric

| Qualitative Level Achieved | Letter Grade | % Range |
|---|--------------|----------|
| Brilliant; highly inspired; faultless or nearly brilliant; quite inspired. | A | 94-100 |
| A level above strong; special in some way; meeting all the minimum requirements going above and beyond. | AB | 87-93.99 |
| More than strong; solid with the key required elements present; special in some way; just above the minimal requirements. | B | 84-86.99 |
| Basically strong; a few minor weaknesses; basics present, but with some key elements missing; a few significant errors or weaknesses. | BC | 77-83.99 |
| Strong, but many key elements are missing; minimum requirements met, but with errors; consistently weak or uninspired. | C | 70-76.99 |
| 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 |

Late Policy

All assignments are due at 12:00 AM (midnight, 24:00) CST on the due date. One (1) day late, defined as a 24-hour period from the deadline (weekday or weekend), will result in 10% of the total points for the assignment deducted. For example, if an assignment is due on a Monday and it is handed in Tuesday, a 10% penalty will be deducted. Two (2) days late will result in 25% off

the module grade; three (3) days late will result in 50% off the module grade. No homework can be turned in more than three (3) days late, unless there are documented extenuating circumstances. Please keep me apprised, by email of any personal situations that might negatively impact your ability to turn homework in on time as soon as you can, so we can make arrangements to accommodate them as soon as possible. In emergencies feel free to contact me via phone, but I will still ask for you to follow up with an email.

COURSE ONLINE ETIQUITE AND PLAGARISM POLICIES

Online Etiquette

<http://online.uwc.edu/technology/etiquette>

Plagiarism

<http://students.wisc.edu/doso/acadintegrity.html>

Travis Lee Flohr

Email: tflohr@wisc.edu

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

Summary of Qualifications

- **Six years** professional experience
- Over **five 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 – expected May 2016 | 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

Faculty Associate

| | |
|--|---|
| Geodesign Program University of Wisconsin-Madison Spring 2014 | <i>Geodesign Capstone</i> 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 | <i>Geodesign for Urban Ecological Design and Planning</i> 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 | <i>Geodesign Methods</i> 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 | <i>Geodesign Program Proposal Development</i> 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 | <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 | <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 Spring 2010 | <i>Landscape Architectural Design Implementation II Studio - Planting Design (Undergraduate)</i> 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 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.
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*.

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 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 Heris, **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

| | |
|---|---|
| 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

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|---|--|
| 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 |
|---------------------------|--|

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

What is the primary divisional affiliation of this course?

Interdivisional

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

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

2

Maximum credits

2

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. Engaged students will: a. learn/practice how to solve spatial environmental questions; b. proficiently apply design thinking toward landscape conservation and adaptation solutions

Does the course have prerequisites or other requirements?

Yes

List the prerequisites and other requirements for the course

In order to take this course students must have been admitted to the Capstone Certificate in Geodesign and successfully completed Land Arc 630 and Land Arc 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

John Harrington (jaharrin@wisc.edu), Janet Silbernagel (jmsilber@wisc.edu), Travis Flohr (tflohr@wisc.edu), Douglas 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?

Capstone Certificate in Geodesign

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 for the Capstone Certificate in Geodesign.

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 Land Arc 634: 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

The course is designed as two sequential modules, each building on the previous. 1. 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 2. Getting complex: Modeling and adaptation strategies In this module students will: a. synthesize potential environmental scenarios b. design/plan strategies for adaptation to landscape changes

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

The Capstone Certificate in Geodesign acknowledges that there are many ways to teach and apply geospatial theory, methods, and technology. In an effort to ensure that we were not duplicating or impinging upon existing course offerings we contacted the following departments that offer GIS courses and are part of the UW-Madison Geospatial Alliance: Civil and Environmental Engineering, Community and Environmental Sociology, Environmental Studies (Nelson Institute), Forestry and Wildlife Ecology, Geography, Geological Engineering, Geoscience, Soil Science, Urban and Regional Planning, and Zoology. Geography is of particular concern due to several levels and types of academic programs offered by the Department of Geography: an undergraduate major (BA/BS) in Cartography and Geographic Information Systems, a capstone (i.e., post-baccalaureate) certificate in Geographic Information Systems, and a MS- Cartography and Geographic Information Systems. We worked closely with Geography that these courses are distinct and provide niche training that does not negatively impact Geography's offerings. We concur with Geography that each of these programs are distinct from each other and provide particular training niches. Further detail will be provided in the forthcoming Capstone Certificate in Geodesign proposal resubmission.

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)
Geological Engineering (418)
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.

[*Land_Arc_633_Geospatial_Approaches_to_Conservation_and_Adaptation_03242014.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 Capstone Certificate in Geodesign.

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. This course has three hours of lecture and instructor contact per week. Discussions, collaborative studio assignments, and readings total 6-9 hours per week. See the course schedule in the uploaded syllabus for additional details concerning how this course meets federal credit guidelines.

If this is a variable credit course, provide rationale

no

Additional comments (optional)

This course will be part of the second semester in the Capstone Certificate in Geodesign proposed by Department of Landscape Architecture at UW-Madison. The Capstone Certificate is a fully online, fourteen credit program that requires taking five courses over the the course of a year.

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?

Geospatial Approaches to Conservation and Adaptation

2 credits

Spring 2015

University of Wisconsin

Dr. Janet Silbernagel, Professor

Course Prerequisites

In order to take this course students must have been admitted to the Capstone Certificate in Geodesign and successfully completed Land Arc 630 and Land Arc 631.

Course modules and goals

This online lecture, discussion, and lab course is designed specifically for students in the Capstone Certificate in Geodesign. 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 landscape conservation and adaptation solutions

The course is designed as two sequential modules, each building on the previous.

1. 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

2. 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

Books & Materials

Conservation Planning by Craighead and Convis 2013, ESRI Press and/or
www.conservationgis.org/publications/ConsPlanningBook.html

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, including: SpatialLabs, 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 We will also use UW Moodle Courses to post updates, assignments, readings, etc.

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 (8) – 10 pts each | 80 |
| Challenges (2) – 30 pts each | 60 |
| Online participation, effort, & peer support | 20 |
| <hr/> | |
| | 160 total |

Final grades will be based on the UW's standard grade scheme as follows, adjusting for course trends and natural breaks (e.g. a modified curve):

A = 95-100%

AB = 90-94%

B = 85-89%

BC = 80-84%

C = 75-79%

D = 70-74%

F = <70

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 specific - Landscape evaluation and conservation GIS
2. Getting complex - Modeling & adaptation strategies



Module I – Landscape evaluation and conservation GIS

Lesson Date Topic

- **Jan 22 Introduction to course**

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

Reading: ^P *ConsPlan'g* – chp 1, 2

Lab exercise: take pre-quiz of existing knowledge

1. Jan 27, 29 Land use and landscape change

Reading: ^P *ConsPlan'g* chp 4-5;

Lab exercise 1: assessing change

2.

3. Feb 3, 5 Evaluation and metrics

Reading: ^P *Gergel* chp 7(pdf)

Lab exercise 2: Fragstats

4. Feb 10, 12 Spatial stats in ArcGIS

Reading: ^P *ConsPlan'g* chp 3, ^S *Interpolating Surfaces* (pdf)

Lab exercise 3: quantifying patterns

5. Feb 17, 19 Selecting species; habitat assessment

Reading: ^P *ConsPlan'g* chp 6-7;

Lab exercise 4: habitat assessment

CHALLENGE 1 - 30 pts



Module II – Modeling and Adaptation

Lesson Date Topic

6. Mar 3, 5 Mapping habitat cores & assessing connectivity

Reading: ^P *ConsPlan*'g chp 9-10; ^S*Nikolakaki article (pdf)*

Lab exercise 5: biodiversity assessment

7. Mar 10, 12 Planning for viability and optimization

Reading: ^P *ConsPlan*'g chp 11-12;

Lab exercise 6: Reserve design; Goodall & G

8. Mar 24, 26 Landscape scenario modeling

Reading: ^P *ConsPlan*'g chp 14

Lab exercise 7: 'spatial labs

9. Mar 30, Apr 1 Projecting trends and designing for adaptation

Reading: ^P *ConsPlan*'g chp 13-15;

Lab exercise 8: 'spatial labs'

CHALLENGE 2 –30 pts