

# Agenda

CALS Curriculum Committee Meeting  
Tuesday, April 23, 2013, 12:00 p.m.  
250 Agricultural Hall

\_\_\_ Francisco Pelegri, (2013)  
\_\_\_ Jeri Barak, (2014)     \_\_\_ \_\_\_  
\_\_\_ Bill Bland, (2014)

\_\_\_ Amin Fadl, (2013)  
\_\_\_ Randy Jackson, (2013)  
\_\_\_ Maya Hayslett, (2013)

\_\_\_ Jack Kloppenburg, (2015)  
\_\_\_ Paul Mitchell, (2013)  
\_\_\_ Masarah Van Eyck, (2015)

**CALS Ex Officio:**  
Sarah Pfatteicher \_\_\_  
Phil Gonsiska \_\_\_

**CASI Ex Officio:**  
\_\_\_ Liv Sandberg (non-voting)

**Student Reps:** \_\_\_ Tim Pearson  
**UP&S Office:** \_\_\_ Susan Gisler  
\_\_\_ Dan Statter

## MINUTES

April 9<sup>th</sup> minutes

## COURSE PROPOSALS

### Course Change Proposals

#### **BIOCORE 301: Evolution, Ecology and Genetics**

**Lead: Jeri**

*Change made to course number and description to make it easier for students and advisors to recognize this as an honors course.*

#### **BIOCORE 303: Cellular Biology**

**Lead: Jeri**

*Change made to course number, honors classification and prerequisites*

#### **BIOCORE 323: Organismal Biology**

**Lead: Jeri**

*Change made to course number, honors classification and prerequisites*

#### **BIOCORE 324: Organismal Biology Laboratory**

**Lead: Jeri**

*Change made to course number, honors classification, course description and prerequisites*

#### **BIOCORE 333: Biological Interactions**

**Lead: Jeri**

*Change made to course number, honors classification, course description, level and prerequisites*

#### **GENETICS 631: Plant Genetics**

**Lead: Bill**

*Change made to credit, course description, prerequisites*

### New Course Proposals

#### **GENETICS 155: Freshman Seminar**

**Lead: Maya**

*Seminar will introduce freshman to the discipline of genetics, UW Laboratory of Genetics, research projects the faculty are pursuing and to resources available.*

#### **GENETICS 564: Introduction to Genomic and Proteomics**

**Lead: Randy**

*Course covers a variety of genomic, proteomic and bioinformatic approaches to biological problems.*

#### **GENETICS 567: Capstone Research Seminar**

**Lead: Randy**

*This is a 1-credit discussion/seminar-based companion course to 2 or more credits of senior research within our major (Gen 699 or Gen 681).*

#### **GENETICS 627: Animal Developmental Genetics**

**Lead: Amin**

*Course focuses on basic genetic mechanisms of animal embryonic development, with particular emphasis on central molecular circuitries.*

**GENETICS 633: Population Genetics****Lead: Amin***A graduate-level course focused on the interpretation of genetic variation in natural populations.***GENETICS 660: Evolutionary Genetics****Lead: Amin***We will present and discuss modern topics in evolutionary genomics, including genomic approaches, their application to evolutionary biology, and insights gleaned from such studies.***INTER-AG 360: International Health Nutrition—Uganda****Lead: Paul***International Health and Nutrition program is to learn firsthand about the many health and nutrition issues faced by people in a developing country.***AUTOMATIC CONSENT****ART HISTORY 264: Dimensions of Material Culture***Note crosslisted subjects and relationship to courses outside subject.***FOOD SCI 301: Introduction to the Science and Technology of Food***Food Sci 301 is the introductory course for both Dietetics and Food Sci students. Due to increasing enrollment, both depts. recommend that Food Sci 301 is open only to students who've already attained Dietetics (ADI) status, and not to predietetics (PDI) students.***Departmental Curriculum Changes***Nine major/ degree programs have submitted curriculum changes for the upcoming academic year thus far. Curriculum sheets for the two departments with more complicated changes are included. The others are summarized in the attached spreadsheet.*

# MINUTES

CALS Curriculum Committee Meeting  
Tuesday, April 09, 2013, 12:00PM  
250 Agricultural Hall

**Present:** Francisco Pelegri, Jeri Barak, Bill Bland, Randy Jackson, Paul Mitchell, Amin Fadl, Maya Hayslett, Jack Kloppenburg, Liv Sandberg, Masarah Van Eyck, Sarah Pfatteicher, Phil Gonsiska

**Absent:** Tim Pearson

Bland motions, Jackson seconds to call meeting to order at 12:05PM.

## MINUTES

March 26th minutes

Omission of Maya Hayslett corrected.

Unanimously approved

## AUTOMATIC CONSENT

-

## NEW BUSINESS

### **Undergraduate Sustainability Certificate**

#### *Proposal*

Committee informed purpose of review is to provide comments to APC, not to approve/disapprove proposal.

Committee informed that certificate supported by Nelson Center and Morgridge Center.

Committee sees potential overlap between ES major and ES certificate.

Committee states a uncommon mix of 100 level courses and a single 500 level (540) course not commonly taught

Committee states proposal is not thorough enough for APC, still contains unknown values (e.g; "XX")

Committee states proposal needs defined governance of program.

Committee states "energy sustainability" must be further developed.

Committee questions administrative burden of supporting 100 students, questions advisor workload.

Committee questions if proposal is too broad in focus.

**Curriculum revision: Landscape Architecture major (non professional) BS degree**

*Proposed revisions*

*Four-year Plan*

Committee stated revisions give students more focus and provides a stronger background for graduate studies.

Committee informed UP&S granted permission by Landscape Architecture to work on changes to other cross-listed courses.

**Approved**

**ANNOUNCEMENTS**

**Plant Biology Option in Biology Major**

Committee informed program governance is in transition.

Committee informed proposal moved to first meeting in May.

Jackson motions to adjourn, Bland second. Committee adjourns at 12:55PM

Submitted: Dan Statter, Approved:

# Course Change Proposal

**Subject** Biology Core Curriculum (206)

**Status** Under Review by School/College

**Proposer** Janet C Batzli

## Basic Information

**Current course number**

*301*

**Current course title**

*Evolution, Ecology, and Genetics*

**Current published course description**

*Focuses on history of life and the development of our ideas about evolution and natural selection; principles of genetics, including Mendel's laws and the structural and functional organization of chromosomes; interrelationships between individuals, populations, communities, ecosystems, and their environments.*

**Chief academic officer of this unit**

*Jeffrey D Hardin*

**Designee of chief academic officer for approval authority**

*Carol L Borcharding; Janet C Batzli*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Spring 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Biology Core Curriculum (206)*

Proposed subject

Will the course number change?

*Yes*

Current course number

*301*

Proposed course number

*381*

Is this an honors course?

*Yes*

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 the title change?

*No*

Current title

*Evolution, Ecology, and Genetics*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability

## Proposed repeatability

### Catalog Changes

#### Will the credits change?

No

##### Current minimum credits

3

##### Current maximum credits

3

##### Proposed minimum credits

##### Proposed maximum credits

#### Will the grading system change?

No

##### Current grading system

##### Proposed grading system

#### Will the published course description change?

Yes

##### Current course description

*Focuses on history of life and the development of our ideas about evolution and natural selection; principles of genetics, including Mendel's laws and the structural and functional organization of chromosomes; interrelationships between individuals, populations, communities, ecosystems, and their environments.*

##### Proposed course description

*Basic principles of ecology and interrelations between individuals, populations, communities, ecosystems and their environment; transmission genetics and introduction to population genetics; origin of life, evolutionary mechanisms, ancestral relationships among species, and the diversity of life.*

#### Will the prerequisites change?

No

##### Current prerequisites and other requirements

*Math 221, Chem 104 or 109, prev or con reg in Chem 341 or 343; or cons inst*

##### Proposed prerequisites and other requirements

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

*Intermediate*

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER



## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*The change in course number should not change the relationship or importance of the course to existing or future programs. The course number change is being done in coordination with changes for all course numbers in the Biocore sequence. Biocore 301 is the foundation lecture course in the four semester Biocore sequence. Students progress from Biocore 301 to Biocore 303 to Biocore 323 to Biocore 333 with increasing level of difficulty and sophistication of science reasoning.*

**Are any of these programs outside your academic unit?**

Yes

**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.**

*Biochemistry (200)*

*Microbiology (192)*

*Biology (205)*

*Zoology (970)*

*Genetics (412)*

*Molecular Biology (650)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*\*Biocore 301 fulfills introductory to intermediate requirements for most biological science majors with some content equivalent to Biology 152 and Genetics 466. \*Students taking Biocore should not take Biology 151/3-2*

**Is there a relationship to courses outside your subject?**

No

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

No

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

## Justification Changes

### Explain the need for the change

*Change made in course number, introducing '8' as the middle digit to indicate automatic honors coursework. This change was made in consult with L&S Honors program and is consistent with other honors course number designations. The change will make it easier for students and advisors to recognize this as an honors course.*

### Additional comments (optional)

### Attach a syllabus

[301\\_course\\_info\\_f12.pdf](#)

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

## **Biocore 301: Evolution, Ecology, and Genetics**

### **Course Information**

**Fall 2012**

### **Overview of the Biology Core Curriculum**

The Biology Core Curriculum (Biocore) is a four-semester interdepartmental honors sequence that provides a broad as well as a solid background for further work in any biologically oriented field of study. The strength of the program derives partly from the participation of faculty from different departments with different viewpoints and interests, and partly from the fact that the whole spectrum of living organisms is used to gain an understanding of the basic organization and function of biological systems. The curriculum offers an integrated approach to biology and permits students to attain a relatively high level of general sophistication with complete flexibility of choice for subsequent specialization.

Biocore consists of four introductory/intermediate level courses: Evolution, Ecology, and Genetics; Cellular Biology; Organismal Biology; and Biological Interactions. Each course consists of a 3-credit lecture course and (except for the last) an accompanying 2-credit lab course. While it is possible to take a lecture course by itself, most students find they get much more from the program by taking the laboratory concurrently. One of the strengths of Biocore is the laboratory experience it provides.

Biocore is not a major but it fulfills some of the requirements for a large number of biological science majors, for example, botany, zoology, and molecular biology in the College of Letters and Science and biochemistry and genetics in the College of Agricultural and Life Sciences. It fits well with the biology major (available through both L&S and CALS): all four lecture courses and the first two labs fulfill the requirement for introductory biology while the third lab fulfills the requirement for an intermediate/advanced laboratory or field research experience.

### **Biocore 301: Evolution, Ecology, and Genetics.**

Biocore 301 begins with an introduction by Dr. Howell who will discuss the “Big Picture” interplay between Ecology, Evolution, and Genetics. Dr. Howell will then introduce the science of ecology. She will first consider the distribution and environmental adaptations of organisms, paying particular attention to the natural systems of Wisconsin. She will continue with a discussion of populations, communities, the flow of energy through ecosystems, some of the ways humans have changed ecosystems, and nutrient cycles. Dr. Simon will then focus on transmission genetics. He will discuss Mendel's laws, mitosis and meiosis, the structural and functional organization of chromosomes, genetic recombination and linkage. Dr. Loewe will use this as a basis for explaining population genetics and speciation. These lectures will provide a foundation for understanding the mechanisms that make evolution work. Some quantitative aspects will be included. Dr. Goldman will complete this sequence with a discussion of phylogenetics, a view of the bigger picture of evolution and a brief overview of the diversity of life. The lecture schedule is given on pages 7-9.

### **Scheduling and Enrollment**

*Biocore 301* meets at 8:50 MWF in Room 132 Noland. Associated 50 min. discussions sections are listed by section on the next page. It is very important that you attend the section for which

you are registered. Part of your grade will be based on your participation and assignments in discussion section.

Section	Time	Place	TA
301	8:50 R	379 Noland	Zachary Throckmorton
302	9:55 R	379 Noland	Zachary Throckmorton
303	9:55 R	579 Noland	Javier Velasco
304	11:00 R	379 Noland	Brittany Murphy
305	12:05 R	539 Noland	Brittany Murphy
306	12:05 R	379 Noland	Javier Velasco
307	1:20 R	553 Noland	Javier Velasco
308	2:25 R	379 Noland	Brittany Murphy

### **Learn@UW – On-line Course Management System**

We will be using Learn@UW to deliver our course materials over the Internet. Learn@UW is a course management system that provides access only to students enrolled in a course and thus enables us to provide course materials in a secure environment. You will be able to use our Learn@UW site to download copies of course materials. You can log-on at the following web address <http://learnuw.wisc.edu>.

### **Texts and Other Materials for the Lecture Course**

Two textbooks and iClickers are required for the course. **Please be sure to keep these textbooks as well as the iClickers** as they will be used in subsequent Biocore courses:

1. *Evolution, Ecology & Genetics (Biocore 301)* A CREATE textbook includes selected portions from *Ecology* by Molles and *Biology* by Brooker et. al (McGraw Hill, 2012)
2. *Principles of Genetics (6<sup>th</sup> edition)* by Snustad and Simmons (Wiley, 2012)
3. *iClickers*

We will also have reading assignments available through Learn@UW and/or on Steenbock Library's electronic reserve. In addition, we have developed a ***Biocore Writing Manual*** for all Biocore courses. The manual is required for lab courses but we will refer to it in Biocore 301 associated with the writing and Comm B emphasis in the course. The manual is available for purchase at Pigwick Papers ~ dba Bob's Copy Shop, 208 N. Charter Street.

Aside from the in-class group exercise sheets and this course information and syllabus handout, all other course materials (including problem sets, mini-lectures, and other assignments) will be available on the web at the Biocore 301 link under Learn@UW.

### **Communication Skills**

The ability to find the information you need and to express your ideas both orally and in writing are skills that we consider to be very important. The combination of Biocore 301/302 fulfills the University's Communication B requirement. Biocore 301 includes two library research position mini-papers (*due October 1, October 31*) and Biocore 302 includes many writing assignments. You need to sign up for 1 (one) of 9 different sessions of a required Library workshop being offered by Barbara Sisolak and Amanda Werhane in Steenbock Library during the week of

September 10. These workshops are intended to help you find appropriate sources for your papers. The workshops build on the skills taught in Communication A courses and cover advanced search techniques to make finding references fast and efficient. The focus is on biological journals and Internet documents. Be sure to sign up for one of the times that are posted on the Biocore bulletin board (down the hall from the lab, 341 Noland) during the first week of classes.

**Note:** Before you attend the library workshop you must complete a short tutorial followed by a brief quiz to be printed out and handed in to the librarian at the start of class. The tutorial should take about 15 minutes or less. The tutorial is intended to cover basic skills that we want to make sure everyone understands before we move on to more advanced search skills you will need for your assignment.

### **Biocore 301 Assignments, Exams, and Grades**

<b>Course Component</b>	<b>Date</b>	<b>Time</b>	<b>Emphasis</b>	<b>Points</b>
Mid-term Exam I	Monday, Oct. 8	7:15-9:15 pm	Lectures 1-14	90
Mid-term Exam II	Tuesday Nov. 6	7:15-9:15 pm	Lectures 15-27 and comprehensive	120
Final Exam	Thursday, Dec. 20	2:45 pm	Lectures 28-43 and comprehensive	140
Problem Sets	Sept. 14, Sept. 28, Oct 12, Oct. 19, Nov. 2, Nov. 19, Nov. 30, Dec. 7	Due <b>before</b> Lecture starts		105*
Lecture Activities	Weekly	In lecture, varies	20 pts. / lecture unit (Ecology, Genetics, Evolution/Diversity)	60
Library Workshop	Week of Sept. 10	Varies, sign up		10
Mini-Papers	Oct. 1, & Oct. 31	Due <b>before</b> Lecture starts		80
Evolution Activity	Dec. 13	Due in Discussion		40
Field/Lab Activity	Nov. 21	Due <b>before</b> Lecture starts		10
Participation				25
Total				680

<b>%</b>	<b>Letter Grade</b>
90	A
80	B
70	C
60	D

Your grade for Biocore 301 will be based on your performance on problem sets (top seven scores out of eight)\*, lecture activities, the mini papers, library workshop, evolution activity, field/lab activity, three exams, and participation mentioned above.

The lecture activities will help you learn the course material and give you practice in developing the "higher level thinking" skills needed to truly understand modern biology. We will be assigning you to a 4-person learning team, made up of students who share the same lecture discussion section. We would like you to sit together during lecture on the days when we have a formal activity planned. On those days, we will provide a folder for each team, containing information you will need. Sometime during lecture, we will ask your team to work together on the activity for a few minutes, after which time we will have a group discussion.

Each lecture class period, you should look to see if we have prepared the folders for you. The first team member to arrive should pick up the folder. After the activity is done, we will ask you to put your materials back in the folder, and have one of your team members return the folder at the end of class.

We will usually have something for you to do each class period, but not all will be group activities, and not all of the group activities will be graded. Each of the 3 course units will have 20 points for you to earn in this way. Because participation in these lecture activities is important to both you and your team members, please notify the Program Manager, Carol Borcharding or Professor Howell before class via email, if you are ill, or if you will be absent for some other valid reason.

This year, we are also providing a series of "mini-lectures," delivered over the Web from links on our Learn@UW course page. You will need to view these before the lecture indicated in the syllabus in order to be prepared for class on those days.

The problem sets will give you opportunities to work with the material and to practice the kinds of problem-solving skills you will need for the exams. We will handle illness and personal emergencies by allowing you to drop your lowest problem set score. (If you miss an assignment you will receive a 0 for that week and that will be the one we drop.) You may work with other class members on the out of class problem sets, but it is important for you to try to work the problems on your own before getting together with a group.

The papers will give you a chance to explore subjects in depth. Each of the exams will emphasize material from the lectures listed above; however, given the integrative nature of this course, material from earlier parts may be included as part of an integrative question. Parts of each exam, and especially of the final exam will be comprehensive. The points assigned to each activity are summarized on the previous page.

Biocore exams are probably very different from those you have had in the past and the assignments will help prepare you for them. Do not make the mistake of simply looking at the answer and thinking you understand it. You learn by going through the problem-solving process. **If you choose to work together with other students (collaborate) on problem sets, you must list the names of your collaborators on your assignment.** Each student must write her/his **own answers**, in his/her **own words**, after working with the group. Assignments containing identical answers **will be investigated** as plagiarism with potential consequences outlined on the Biocore statement of academic integrity (the last page of this handout).

You are not in competition with anyone for a grade since neither the course as a whole nor the individual exams are curved. Intermediate grades (AB and BC) will be used at the end of the

semester at the discretion of the teaching staff for scores on the borderlines. No one would be more delighted than the staff of this course if everyone earned an A!

### **Course Administration**

Dr. Howell serves as the chair of Biocore 301. Carol Borcharding ([clborche@wisc.edu](mailto:clborche@wisc.edu)) is the Program Manager and is the first person to contact for all questions of course enrollment, section changes, signing up for early make-up exams (allowed only for valid reasons), and any special needs. Carol Borcharding can be found in the Biocore office, 345 Noland Hall. Grading questions can be taken up with Dr. Howell ([eahowell@wisc.edu](mailto:eahowell@wisc.edu)) and should be submitted no later than one week after graded exams have been returned.

To minimize the amount of class time taken up with administrative details, all announcements and information of general interest will be sent to you on Wednesday afternoon by email. It will be your responsibility to read this email routinely, since most announcements posted there will *not* be reiterated in class.

### **Biocore Peer Mentoring Program**

This year we will be offering a Peer Mentoring program in Biocore 301. We started the program nine years ago with great success! In this program, second year Biocore students or alums of the program (juniors & seniors) will be leading study sessions for groups of 5-6 Biocore 301 students. Checkout this video to learn more about Peer Mentoring in Biocore

<http://www.youtube.com/watch?v=Z9vTwijMvNA>. You can choose to participate in this program on a purely volunteer basis. Guidelines for participation and sign up sheets will be available during the second week of classes (Sept 10-14). In general, peer mentors will facilitate weekly study sessions to study material related to the material you will be covering in Biocore 301. If you decide to participate (participation is VOLUNTARY), we ask that you commit to come to at least the first 5 weeks of the semester. After that, you may switch groups or stop attending if you do not find it helpful. As a participant in these groups, it is important to note that peer mentors will NOT be expected to have the answers. Rather, they will serve as peer learning guides, helping you think about how to approach problems, to improve your study skills, and to navigate through the material most effectively. As a result, we not only hope that you become more confident in your learning and understanding of the material, but that you establish a relationship with the larger Biocore learning community. Dr. Janet Batzli coordinates the program together with Biocore Alumni George Bonadurer ([bonadurer@wisc.edu](mailto:bonadurer@wisc.edu)), Diana Cowdrey ([cowdrey@wisc.edu](mailto:cowdrey@wisc.edu)), and Jeremie Sauve ([sauve@wisc.edu](mailto:sauve@wisc.edu)), who will be the undergraduate program assistants this fall. If you have any questions please contact George, Diana, Jeremie or Janet Batzli ([jcbatzli@wisc.edu](mailto:jcbatzli@wisc.edu)). Look for details about this exciting program coming soon in your weekly email announcements and get involved!

### **Special Needs and Religious Holidays**

Please let Carol Borcharding ([clborche@wisc.edu](mailto:clborche@wisc.edu)) know by September 7 if you have any special needs that we should accommodate, scheduled absences, a potential exam conflict, or a religious holiday that conflicts with a course activity.

### **Student Job Listings & Finding Research Lab Opportunities**

We try to provide a liaison service between students looking for lab or field jobs and jobs looking for students. Look for postings that appear regularly in our weekly announcements. Also see the "Finding Faculty with Whom to Work" section listed under the Links button on the

Biocore web site <http://www.biocore.wisc.edu> (this will be updated soon so keep checking). The Center for Biology Education (CBE) has a terrific site that guides students on how to find undergraduate research experience in biology labs on campus <http://www.wisc.edu/cbe/research/>. In addition, CBE lists biology jobs available to undergraduates in Steenbock Memorial Library (across from the circulation desk) and electronically on the UW-Madison Student Job Center's web site under UW (SC) Science <http://jobcenter.wisc.edu>. Other research opportunities are listed on the Provost's web site <http://www.provost.wisc.edu/undergradresearch/>.

## **Students' Questions and Feedback**

The staff of this course, lecturers and TAs alike, welcome your questions, suggestions, and comments. We want to get to know you, and we appreciate your feedback. Our phone numbers and addresses are on listed on page 11. Dr. Jeff Hardin is the Faculty Director and Dr. Janet Batzli serves as the Associate Director of Biocore. They would be happy to talk with you about any aspect of the program.

## **Preventing and Reporting Illness**

All university departments are being asked to monitor and keep track of student illness in accordance with the UW-Madison Influenza Response Plan. If you need to miss class due to illness please contact your TA and for Biocore 301 Dr. Evelyn Howell ([eahowell@wisc.edu](mailto:eahowell@wisc.edu)), especially if your absence is for more than one week. Under extenuating circumstances, we will work with you to complete course work within a reasonable time.

Although we recognize that regular flu symptoms are difficult to differentiate from those associated with H1N1 flu or other type A influenza viruses, if you suspect that you have the flu with symptoms including fever greater than 100° F with associated cough, respiratory congestion, body aches, and sore throat please contact your instructors as soon as possible, and stay home until you are fever-free for at least 24 hours. If your illness is extended beyond seven days, you are advised to go to University Health Services for attention.

To prevent the spread of flu and other communicable disease, please 'cover and cough', throw away tissues immediately after use, avoid touching your face and clean your hands often. Hand sanitizer is available in the hallways on the first and second floor of Noland Hall as well as in each of the Biocore lab rooms. If you have other health issues that are associated with your susceptibility to communicable disease such as H1N1 flu, please contact Janet Batzli ([jcbatzli@wisc.edu](mailto:jcbatzli@wisc.edu)) to discuss accommodations.

To learn more, we encourage you to visit Scientific American web site featuring several reports on H1N1 influenza (swine flu). <http://www.scientificamerican.com/report.cfm?id=swine-flu-outbreak>



## Biocore 301: Evolution, Ecology & Genetics Schedule for Fall 2012

Lecture	Date	Lecturer	Title
1	Sept. 5	Howell	The Big Picture: Evolution, Ecology, and Genetics
2	Sept. 7	Howell	Introduction to Ecology; Adaptation of Organisms to the Physical Environment *mini-lecture 1
<b>Assignments due:</b>		1. Mini-lecture #1 before class meeting 2. 2. Mini-paper assigned – Pick topics by September 12	
3	Sept. 10	Howell	Adaptation of Organisms to the Physical Environment; Ponds and Prairies *mini-lecture 2
4	Sept. 12	Howell	Adaptations of Organisms to Biota: Populations: Size, Pattern, Demography
5	Sept. 14	Howell	Population Dynamics: Growth Models *mini-lecture 3
<b>Assignments due:</b>		1. Mini-lecture #2 before class meeting 3 2. Mini-lecture #3 before class meeting 5 3. Attend Library Workshop 9/10-14 4. Problem Set #1 due Friday, September 14 <u>before</u> lecture.	
6	Sept. 17	Howell	Populations and Conservation – Rare Species, Exotic Species, Metapopulations. Managing Populations
7	Sept. 19	Howell	Adaptations of Organisms to Biota; Communities: Organization and Diversity. Competition
8	Sept. 21	Howell	Communities: Predator-Prey Interactions. Mutualisms
<b>Assignments due:</b>		1. Draft of mini-paper #1 due to peer reviewer at least 24h before discussion 9/20. 2. Complete peer review of partner's paper before discussion.	
9	Sept. 24	Howell	Disturbance, Succession, "Stability"
10	Sept. 26	Howell	Communities and Conservation: Restoration
11	Sept. 28	Howell	Ecosystems: Food Webs and Energy Flow
<b>Assignments due:</b>		1. Problem Set #2 due Friday, September 28 <u>before</u> lecture.	
12	Oct. 1	Howell	Ecosystems: Nutrient Cycles *mini-lecture 4
13	Oct. 3	Howell	Ecosystems: Nutrient Cycles
14	Oct. 5	Howell	Global Ecology
<b>Assignments due:</b>		1. Mini-lecture #4 before class meeting 12 2. Revised mini-paper #1 due at beginning of lecture on Oct. 1	

Lecture	Date	Lecturer	Title
15	Oct. 8	Simon	Sources of Variation

**Exam Review: Sunday, October 7 – 4:30 – 5:30 pm**

**Exam I: Monday, October 8 – 7:15 – 9:15 pm**

16	Oct. 10	Simon	Life Cycles
17	Oct. 12	Simon	Mitosis and Meiosis*mini-lecture 5

First mini-paper returned with TA comments- useful for 2<sup>nd</sup> mini-paper

<b>Assignments due:</b>	1. Mini-lecture 5 before class meeting 17
	2. Problem Set #3 due Friday, Oct. 12 <u>before</u> lecture
	3. Mini-paper 2 Assigned

18	Oct. 15	Simon	Gregor Mendel and the Birth of Genetics
19	Oct. 17	Simon	Probability and Testing Genetic Hypotheses*mini-lecture 6
20	Oct. 19	Simon	Gene Action and Interaction

<b>Assignments due:</b>	1. Problem Set #4 due Friday, Oct. 19 <u>before</u> lecture
	2. Mini-lecture #6 before class meeting 19

21	Oct. 22	Simon	The Chromosome Theory of Heredity
22	Oct. 24	Simon	Genetic Recombination and Linkage
23	Oct. 26	Simon	Crossing Over and Genetic Distance*mini-lecture 7

<b>Assignments due:</b>	1. Draft of mini-paper #2 to peer reviewer at least 24h before discussion Oct 25.
	2. Complete peer review of partner's paper before discussion
	3. Mini-lecture 7 before class meeting 23

24	Oct. 29	Simon	Chromosome Structure, Extrachromosomal Inheritance and Transposable Elements
25	Oct. 31	Simon	Chromosome Number and Ploidy
26	Nov. 2	Simon	Inheritance of Complex Traits

<b>Assignments due:</b>	1. Revised mini-paper #2 due Wednesday, Oct. 31 <u>before</u> lecture
	2. Problem Set #5 due Friday, November 2 <u>before</u> lecture

27	Nov. 5	Simon	Quantitative Genetics*mini-lecture 8
----	--------	-------	--------------------------------------

**Exam Review: To Be Announced**

**Exam II: Tuesday, November 6 -- 7:15-9:15 pm**

28	Nov. 7	Goldman	Charles Darwin, Man of Curiosity
29	Nov. 9	Goldman	Charles Darwin, Reluctant Prophet

<b>Assignments due:</b>	1. 1. Mini-lecture 8 before class meeting 27
-------------------------	--

30	Nov. 12	Loewe	Population Genetics: Science of the Future Despite a Century of History
31	Nov. 14	Loewe	The Five Factors of Evolution
32	Nov. 16	Loewe	Fitness, Selection and Adaptive Landscapes

Lecture	Date	Lecturer	Title
33	Nov. 19	Loewe	Mutation, Selection and Drift at a Single Locus
34	Nov. 21	Loewe	Multi-Locus Population Genetics and Molecular Evolution
<b>Assignments due:</b>		1. Problem Set #6 due Monday, Nov. 19 <u>before</u> lecture 2. Field Activity write up, due Nov. 21 <u>before</u> lecture <i>Thanksgiving Recess, Nov. 22 - Nov. 25</i>	
-----			
35	Nov. 26	Loewe	Mechanism of Speciation
36	Nov. 28	Goldman	Tree Thinking and Other Branches of Knowledge
37	Nov. 30	Goldman	Rapid Evolution in Agriculture, Medicine, and Environment
<b>Assignments due:</b>		1. Problem Set #7 due Friday, Nov. 30 <u>before</u> lecture	
-----			
38	Dec. 3	Goldman	Evolution of Behavior, Brain, Emotions, and Humanity
39	Dec. 5	Goldman	Evolution of Diversity: Prokaryotes and Eukaryotes
40	Dec. 7	Goldman	Evolution of Diversity: Protists and Fungi
<b>Assignments due:</b>		1. Problem Set #8 due Friday, Dec. 7 <u>before</u> lecture	
-----			
41	Dec. 10	Goldman	Evolution of Diversity: Animals
42	Dec. 12	Goldman	Evolution of Diversity: Plants
43	Dec. 14	All	Integration Lecture
<b>Assignments due:</b>		1. Evolution Activity due Dec. 13 in Discussion	
<b><i>Exam Review to be announced</i></b>			
<b><i>Final Exam Thursday, December 20 – 2:45 -4:45 PM</i></b>			

**Biocore 301 Course Learning Goals**

By the end of Biocore 301, you should be able to:

1. Understand and apply foundation and emerging concepts in ecology, genetics, and evolution at the introductory to intermediate level.
2. Use terminology accurately and effectively within appropriate conventions of the discipline.
3. Understand how we know what we know in biology through study of the nature of science, the primary scientific literature, and historical experiments.
4. Know how to find and evaluate information.
5. Generate predictions based on observations and design experiments to test hypotheses.
6. Draw on past experience, accumulated knowledge, and creativity to solve complex biological problems.
7. Build a logical argument and make conclusions based on evidence,
8. Think critically, be skeptical, look at evidence before believing, and understand that there is not always just one right answer to a question.
9. Utilize quantitative approaches to solve problems and make conclusions about data
10. Express ideas clearly and logically in written and oral form. Understand the roles of critical review and revision
11. Work as a member of a productive, collaborative group.
12. Analyze a problem using a systems approach ("systems thinking") recognizing levels of biological organization, and emergent properties of the whole.
13. Develop interpersonal communication and leadership skills.
14. Recognize and make judgments regarding ethical issues in science.

## Biocore 301 Staff Directory Fall 2012

### Lecturing Staff

Evelyn Howell, Chair	eahowell@wisc.edu	25e Ag Hall	263-6964
Irwin Goldman	ilgoldma@wisc.edu	140f Ag Hall	262-7781
Phil Simon	psimon@wisc.edu	203b Horticulture	262-1248
Laurence Loewe	loewe@wisc.edu	327 Noland Hall	316-4324

### Laboratory Staff

Janet Batzli	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Seth McGee	samcgee@wisc.edu	361 Noland Hall	262-6189

### Collaborating Librarian

Amanda Werhane	awerhane@library.wisc.edu	119 Steenbock Library	890-2684
Barbara Sisolak	bsisolak@library.wisc.edu	119 Steenbock Library	263-2385

### Lecture TAs

Brittany Murphy	bmmurphy4@wisc.edu	524 Noland Hall	262-7431
Zach Throckmorton	zthrockmorto@wisc.edu	524 Noland Hall	262-7431
Javier Velasco	velasco@wisc.edu	524 Noland Hall	262-7431

### Biocore Administration

Jeff Hardin, Faculty Director	jdhardin@wisc.edu	327 Zoo Research	262-9634
Janet Batzli, Assoc. Director	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Carol Borcharding, Program Manager	clborche@wisc.edu	345 Noland Hall	265-2870

## **BIOCORE STATEMENT OF ACADEMIC INTEGRITY**

What is academic integrity and why are we promoting it? Academic integrity means being honest about your intellectual work which is fundamental to the pursuit of knowledge. We ask you to sign this honor code as a pact between you and the Biocore Program faculty/staff to abide by the academic rules of conduct laid out by the University. Without these rules of conduct our institution would be severely limited in its capacity to function as community of higher learning. We encourage you to visit the following web sites and get familiar with the University policy concerning Student Conduct and Disciplinary Rules (<http://www.wisc.edu/students/saja/misconduct/misconduct.html>). As a student of the University of Wisconsin it is your responsibility to become familiar with, understand, and abide by the general Statement of Principles and Disciplinary Guidelines (<http://www.wisc.edu/students/saja/misconduct/UWS14.html>) outlined by the Dean of Students and the UW Board of Regents. These guidelines protect both you and the university if an infraction has occurred. Ignorance of these regulations is not a defense in cases of infringement. So.. Just DON'T Do It!

### **DEFINITION OF ACADEMIC DISHONESTY**

from UW Academic code 14.03 <http://www.wisc.edu/students/saja/misconduct/UWS14.html>

**"Academic misconduct is an act in which a student:**

1. seeks to claim credit for the work or efforts of another without authorization or citation;
2. uses unauthorized materials or fabricated data in any academic exercise;
3. forges or falsifies academic documents or records;
4. intentionally impedes or damages the academic work of others;
5. engages in conduct aimed at making false representation of a student's academic performance;
6. assists other students in any of these acts

"Examples of academic misconduct include, but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator; stealing (or altering) examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet (or group worksheet); hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with lab experiment or computer program of another student".

### **CONSEQUENCES FOR ACADEMIC DISHONESTY**

To determine whether academic dishonesty has occurred, the instructor and Biocore administrators will meet with the student. In Biocore, students who commit acts of academic misconduct will write letter describing what they did and, if appropriate, apologize to individuals who were involved in the incident. In alignment with the penalties listed in the University's UWS14, Student Academic Disciplinary Procedures we recognize three levels of consequences (1) An oral reprimand; and (depending on the severity of the case) written reprimand presented only to the student; or an appropriate assignment to be evaluated by the instructor or Biocore administrative staff, (2) a lower or failing grade on the assignment, exam, or course; removal of the student from the course or program; and a written reprimand included in the student's university disciplinary file, (3) recommendation for disciplinary probation for up to 2 years, suspension, or expulsion from the University.

### **BIOCORE HONOR CODE**

You will be asked to sign a statement upon entering the Biocore program during the first week of class in Biocore 301. In order to participate in the Biocore Program you must agree to the following principles:

1. I will report laboratory data honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.
2. All work that I submit under my name to a peer for peer review or to an instructor for final grading will be my own. I will not copy or paraphrase from another student presently or previously enrolled in this course. For projects where collaboration is explicitly permitted, I will list the names of students with whom I worked.
3. I will not allow another student to copy or "borrow" my laboratory reports or other assignments.
4. I will not forge or falsify academic documents including graded assignments and examinations
5. I will strive to make Biocore a community that is based on honesty and integrity.

## Course Change Proposal

**Subject** Biology Core Curriculum (206)

**Status** Under Review by School/College

**Proposer** Janet C Batzli

### Basic Information

**Current course number**

*303*

**Current course title**

*Cellular Biology*

**Current published course description**

*Cellular and molecular basis of life. The main themes are the structure and function of cells and organelles, the flow of energy in cells, and the storage, expression, and regulation of genetic information.*

**Chief academic officer of this unit**

*Jeffrey D Hardin*

**Designee of chief academic officer for approval authority**

*Carol L Borcharding; Janet C Batzli*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Spring 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Biology Core Curriculum (206)*

Proposed subject

Will the course number change?

*Yes*

Current course number

*303*

Proposed course number

*383*

Is this an honors course?

*Yes*

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 the title change?

*No*

Current title

*Cellular Biology*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability



**Proposed repeatability**

## Catalog Changes

**Will the credits change?**

*No*

**Current minimum credits**

*3*

**Current maximum credits**

*3*

**Proposed minimum credits**

**Proposed maximum credits**

**Will the grading system change?**

*No*

**Current grading system**

**Proposed grading system**

**Will the published course description change?**

*No*

**Current course description**

*Cellular and molecular basis of life. The main themes are the structure and function of cells and organelles, the flow of energy in cells, and the storage, expression, and regulation of genetic information.*

**Proposed course description**

**Will the prerequisites change?**

*Yes*

**Current prerequisites and other requirements**

*Biocore 301, Chem 341 or 343; or cons inst*

**Proposed prerequisites and other requirements**

*Biocore 381 (or Biocore 301 previous to Fall 2014), Chem 341 or 343; or cons inst*

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

*Intermediate*

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*The change in course number should not change the relationship or importance of the course to existing or future programs. The course number change is being done in coordination with changes for all course numbers in the Biocore sequence. Biocore 303 is the second lecture course in the four semester Biocore sequence. Students progress from Biocore 301 to Biocore 303 to Biocore 323 to Biocore 333 with increasing level of difficulty and sophistication of science reasoning.*

**Are any of these programs outside your academic unit?**

Yes

**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.**

*Biochemistry (200)*

*Microbiology (192)*

*Biology (205)*

*Zoology (970)*

*Genetics (412)*

*Molecular Biology (650)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*\*Biocore 303 fulfills intermediate biology requirements for most biological science majors with some content equivalent to Genetics 466, Zoology 470, and Biochem 501. \*Students taking Biocore should not take Biology 151/3-2.*

**Is there a relationship to courses outside your subject?**

No

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

No

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

## Justification Changes

### Explain the need for the change

*Change made in course number, introducing '8' as the middle digit to indicate automatic honors coursework. This change was made in consult with L&S Honors program and is consistent with other honors course number designations. The change will make it easier for students and advisors to recognize this as an honors course. This change is being done in coordination with changes for all course numbers in the Biocore sequence.*

### Additional comments (optional)

### Attach a syllabus

[\*303\\_course\\_info\\_revised\\_s13.pdf\*](#)

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

**THE BIOLOGY CORE CURRICULUM  
UNIVERSITY OF WISCONSIN-MADISON  
Biocore 303: Cellular Biology**

**Course Information  
Spring, 2013**

Welcome to Cellular Biology, the second course in the four-semester Biology Core Curriculum. Prerequisites are Evolution, Ecology, and Genetics (Biocore 301), Organic Chemistry (Chemistry 343), and Calculus (Math 221). (Students with questions concerning prerequisites should check with the Biocore Associate Director, Janet Batzli, 363 Noland Hall, 263-1594.) All of the Biocore courses are honors courses and we encourage you to register for honors credit. No additional work is required for honors credit because each course is deemed to be appropriately rigorous already.

Brief Description of Biocore 303: Cellular Biology Lecture

Biocore 303 deals with various aspects of life at the cellular and molecular levels. As is evident from the lecture schedule on pp. 6-7, we will be concerned with several major themes. In Unit 1, Dr. Katrina Forest will provide an *introduction to cells and cell membranes* and will then discuss *macromolecules* and the *flow of energy in cells*, considering how cells obtain, store, and use energy. In Unit 2, Dr. Hardin will take up the *flow of information* in prokaryotes and eukaryotes, including the storage, transmission, and expression of genetic information. The course then concludes with Unit 3 by Dr. Erik Dent on *signal transduction*, focusing especially on the importance of receptor-ligand interactions, cell signaling, cell motility, the regulation of the cell cycle, and cancer.

Dr. Hardin is the Biocore 303 course chair and serves as the Faculty Director of Biocore. He welcomes your email and personal visits. Drs. Katrina Forest and Erik Dent are the other two Biocore 303 faculty instructors you will see in lecture this semester. They are very interested in your learning and are eager to get to know you. Dr. Janet Batzli is Biocore's undergraduate advisor, Associate Director, co-chair of Biocore 304 and is interested in talking to all Biocore students concerning general course/ career planning or comments/suggestions on any aspect of the Biocore program. Dr. Michelle Harris is co-chair of Biocore 304 and Biocore's Minority Liaison and especially invites minority students to stop by and see her. Carol Borcharding is Biocore's program administrator (345 Noland) and is happy to help you with enrollment questions, section changes, and scheduling conflict exams. See the last page of this handout for our contact information. Come and visit us!

Biocore 303 Scheduling and Enrollment

Biocore 303 meets at 8:50 AM MWF in 132 Noland Hall. In addition, each of you will attend a discussion section on Thursdays. Two evening exams are scheduled, as indicated on page 3; please try to avoid conflicts with these evenings. The third exam will be given on May 13, during final exam week. If you have any **questions regarding enrollment, changing sections, grade records or scheduling a conflict exam please contact Carol Borcharding ([clborche@wisc.edu](mailto:clborche@wisc.edu))**, Biocore's program administrator.

Section	Time	Place	TA
301	9:55 R	379 Noland	Kimberly Dessoify
302	11:00 R	379 Noland	Kimberly Dessoify
303	12:05 R	379 Noland	Kristina Blanke
304	12:05 R	553 Noland	Kimberly Dessoify
305	1:20 R	379 Noland	Kristina Blanke
306	2:25 R	379 Noland	Sheryl Walker
308	4:35 R	379 Noland	Sheryl Walker

### Unifying Concepts For Biocore 303

Our overall goal in 303 is to develop a genuine understanding of the most important concepts of cell biology, and to do so in ways that will equip you to use that understanding in whatever future context may turn out to be relevant for you. To assist in this endeavor, we have identified the following unifying concepts for 303, which we consider to be at the heart of the course as a whole and of each of the three units:

- *Specificity of macromolecular interactions:* Biological molecules recognize other molecules in much the same way that a lock recognizes a particular key or one piece of a jigsaw puzzle recognizes another.
- *Importance of cellular compartmentalization:* The various chemical activities of cells tend to be performed in very specific places in a cell. In eukaryotes, cells are divided into compartments by membranes, with each membrane-bounded compartment specializing in its own set of chemical processes.
- *Energy acquisition and use:* The activities we associate with life all consume energy. Cells produce and use energy using specific types of “energy currency” in the cell; such energy utilization involves specific chemical reactions.
- *Flow of genetic information between and within generations:* The ability of a cell to perform its complex chemistry depends on the information contained in its genes. Genes are made of DNA. DNA contains information that is transmitted from one generation to the next and also is used within cells to regulate cellular chemistry.
- *Signal transduction and cell-cell communication:* Receptor molecules on the surface of cells recognize (bind) specific substances in their environment. The binding of signal molecules induces changes in the receptors that initiate chemical reactions inside the cell. In this way cells can sense and react to changes in their environment.
- *Regulation of cellular processes:* Cells tightly regulate the myriad processes that occur within them. Such regulation can occur at many different levels, from transcription of DNA to the modification of protein shape or phosphorylation.
- *Experimental approach to cell biology:* Our knowledge of biology is only as good as the experimental evidence on which it is based. We must, therefore, constantly ask ourselves how we know what we know. What is the evidence? Remember that science is a human activity and that humans are fallible.

### Biocore 303 Textbooks

The following texts are required for Biocore 303:

Hardin, J., Bertoni, G., & Kleinsmith, L., *Becker's World of the Cell*, 8e (2012)  
Snustad, D. and Simmons, M., *Principles of Genetics*, 6e (2012).  
iClickers

You should have the *Principles of Genetics* text and an iClicker from last semester; your only required purchase this semester is *Becker's World of the Cell*. This textbook is conveniently bundled with the *Solutions Manual*, which provides detailed answers for all problems in *Becker's World of the Cell*.

**A personal note from Dr. Hardin:** *Becker's World of the Cell* was originally written by its founding author, Dr. Wayne Becker (professor emeritus, UW-Madison Botany department) specifically for teaching in Biocore 303. The 8<sup>th</sup> edition continues this tradition, and you will find that many aspects of the lecture content will dovetail well with your text. We hope it helps you! I also hope that you'll help me. First, we count on you to find mistakes in the text! If you find one, please let me know, as it helps all of us and the *Becker's World of the Cell* author team. Second, in addition to factual issues or typographical errors, I'll be looking to you for suggestions for how to make the book better. I hope you'll take this opportunity to put all of the community-based learning that you've come to expect in Biocore to good use in 303, as we learn together!

### Biocore 303 Unit Readings and Handouts

For each of the units in this course, the lecturer has prepared material available for download via learn@UW (<http://learnuw.wisc.edu>). As in 301, you will be expected to download and print out the handouts for each week's lectures. The material for each unit will indicate appropriate reading assignments in the text. **You are expected to do the assigned reading *before* coming to lecture; not doing so will make it more difficult to follow the lecture presentations.** The readings are designed to reinforce lecture material. You will **not** be responsible for material not covered in lecture unless **explicitly** stated.

### Biocore 303 Exams and Assignments

Your grade in this course will be determined by your performance on **3 exams** ( $2 \times 100 + 1 \times 120 = 320$  points), the **best 11 of 12 problem sets** ( $11 \times 10$  points = 110 points), **best 11 of 12 quizzes in discussion sections** ( $11 \times 5$  points = 55 points), and **active participation in lecture** (40 points) for a total of 525 points. Each exam will deal primarily with the subject matter of the specified lectures but is likely also to include questions that presume information and understanding from the preceding units.

Exam	Points	Date	Time	Emphasis of Exam
Exam 1	100	Feb. 26	7:15 PM	Unit 1 (lectures 1-15)
Exam 2	100	April 9	7:15 PM	Unit 2 (lectures 16-30)
Exam 3	120	May 13	2:45 PM	Unit 3 (lectures 31-44) and comprehensive

There will be a problem set each week except for weeks when an exam is given. Each is worth 10 points and must be turned into your TAs bin in the back of the lecture hall **before** the beginning of lecture on Friday. There will also be a quiz (worth 5 points) each week in discussion section except during the weeks we have an exam. We will handle illness and other extenuating circumstances by allowing you to drop your lowest score for the problem set and the quiz. If you miss one of these assignments, you will receive a 0 for it and that will be the score we drop, with the remaining 11 counting toward your final grade. Late assignments will **NOT** be accepted.

There may be podcasts during the semester to help teach difficult concepts or alleviate common misconceptions. Students will be notified when these podcasts are available on learn@UW. In-class lecture activities will help you learn the course material and give you practice in developing the “higher level thinking” skills needed to truly understand modern biology. These activities will reflect materials highlighted in lecture and allow you to test your understanding by using iClickers, followed by class discussion. These activities are designed to aid your learning in a ‘low stress’ setting. Bring your iClicker to lecture every day as you will be answering questions during lecture and will receive one point per lecture. To account for illness and other circumstances during the semester, we will allow you to drop four points for a total of 40 points out of 44 for active participation in lecture.

Here's a reminder about what you'll need to do to register your iClicker:

1. Go to the iClicker website (<http://www.iclicker.com>).
2. Click on "Register Your Clicker" at the bottom left corner of the page.
3. Fill in your name, student ID # and iClicker number located on the back of your iClicker. If this number has rubbed off, you will be able to look up this number using this site's "Look UP Tool".
4. Be sure to check your iClicker for a low battery. There will be a light that turns on when the battery is good. The low battery light turns on if you will need batteries soon. We strongly recommend that you change your batteries now if you need to. If no light comes on at all when you turn it on, then you need to change the batteries.

If you think you need help, please contact Carol Borcharding ([clborche@wisc.edu](mailto:clborche@wisc.edu)).

**Your attendance in discussion section is mandatory.** Your participation in discussion will be taken into consideration during assignment of final grades.

## Biocore 303 Exam Policies

All students are expected to take the regular exams as scheduled. Students with academic conflicts for a particular evening exam may sign up with Carol Borcharding, the program administrator, for an early make-up exam to be given earlier on the same day as the evening exam. Permission to take an early make-up exam must be obtained in advance. No other exam arrangements are possible, except in case of personal hardship and then only by prior arrangement with the course chair. Exams given after the regularly scheduled exam may be oral at the discretion of the lecturer involved. No make-up exams will be given for Exam 3 because that exam is scheduled during final exam week. Exam regrades will be accepted in the Biocore Office up to one week after the exam is handed back. The exam should be placed in the box labeled "exam regrade" and have a cover page clearly stating why you believe a particular question needs to be reexamined. Please note that when you request a regrade, the whole exam will be subject to reevaluation and your grade could go up or down accordingly.

## Biocore 303 Grades

In Biocore, students do not compete with one another for grades, because neither the individual exams nor the overall grade distribution is "curved." The grade ranges are set in advance and we guarantee that you will not receive a lower letter grade than that specified below. ABs and BCs are determined at the discretion of the teaching staff at the end of the semester. No one would be more delighted than the instructional staff should it prove "necessary" (=possible) to give everyone A's, *provided* everyone earns an A! The only "competition" is therefore with our standards of expectation:

<u>Letter Grade</u>	<u>Total Points</u>
A	472.5-525 (90-100%)
B	420-472.4 (80-89%)
C	367.5-419 (70-79%)
D	315-367.4 (60-69%)
F	< 314 (< 60%)

## Biocore 303 Course Policies

We will continue the practice from last semester of emailing you announcements (usually on Wednesday evenings) and posting information on the learn@UW site (<http://learnuw.wisc.edu>). It is your responsibility to pay attention to these announcements since most of them will not be repeated in class. **Please be on time for class and please turn off your cell phones.** It is disruptive to your fellow students and rude to the lecturer.

We expect you to hand in assignments on time and appear for the regularly scheduled exams unless you have made specific alternative arrangements in advance. You will find us very willing to make whatever provisions we can to assist you in coping with illness, death in the family, observance of religious holidays or other extenuating circumstances, but you must let us know as soon as you are aware of the problem.

## Preventing and Reporting Illness

All university departments are being asked to monitor and keep track of student illness in accordance with the UW-Madison Influenza Response Plan. If you need to miss class due to illness please contact your TA and for Biocore 303 Dr. Jeff Hardin ([jddhardin@wisc.edu](mailto:jddhardin@wisc.edu)) and for Biocore 304, Dr. Michelle Harris ([maharris@wisc.edu](mailto:maharris@wisc.edu)), especially if your absence is for more than one week. Under extenuating circumstances, we will work with you to complete course work within a reasonable time.

If you suspect that you have the flu with symptoms including fever greater than 100° F with associated cough, respiratory congestion, body aches, and sore throat please contact your instructors as soon as



possible, and stay home until you are fever-free for at least 24 hours. If your illness is extended beyond seven days, you are advised to go to University Health Services for attention.

To prevent the spread of flu and other communicable disease, please ‘cover and cough’, throw away tissues immediately after use, avoid touching your face and clean your hands often. Hand sanitizer is available in the hallways on the first and second floor of Noland Hall as well as in each of the Biocore lab rooms. If you have other health issues that are associated with your susceptibility to communicable disease such as the flu, please contact Janet Batzli ([jcbatzli@wisc.edu](mailto:jcbatzli@wisc.edu)) to discuss accommodations.

#### Student Board of Directors (BOD)

We are soliciting student representatives who would like to represent both Biocore 303 and Biocore 304 in the weekly staff meeting. These students will serve as representatives to let the faculty know of issues and concerns of all students in Biocore 303 and 304. The representatives are expected to write a short statement summarizing the meeting that will be included in the weekly announcement. This is a good opportunity to contribute to course improvement and student advocacy. In addition, as a BOD member, you can get to know the course faculty instructors better. If you are interested in being a student representative, please contact Dr. Janet Batzli.

#### Biocore 303 Peer Mentored Study Groups

As we did in Biocore 301, we will be offering peer mentored study opportunities for Biocore 303 students this spring. Although we have evidence that consistent participation in a peer mentored study group improves overall performance, this activity is VOLUNTARY and will NOT be graded in any way. In this program, second year Biocore students or alums of the program (juniors & seniors) facilitate study sessions for groups of 5-10 Biocore 303 students. Peer mentors (PM) facilitate weekly study sessions related to the material you will be covering in Biocore 303. As a participant, it is important that you understand that PM are NOT expected to ‘teach’/ lecture/ or even to have the right answers to the questions you have. They are NOT TA’s or instructors. Rather, they are peer learning guides, helping you think about how to approach problems to improve your study skills, navigate through material and help broaden your network. As a result we not only hope that you become more confident in your learning and understanding of cell biology, but that you establish a relationship with the larger Biocore learning community. Janet Batzli serves as the program advisor. To sign up, look for details coming soon in your course email.

#### Accommodations for Students With Disabilities

We want to make sure that students with disabilities are fully included in the lecture. If you need special accommodations in the instruction or assessment processes of this course, get in touch with Dr. Hardin *within the first two weeks of the semester*.

#### Getting to Know You: Our Open-Door Policy

In this course, you will find the staff to be genuinely interested in interacting with students. Toward this end, you are invited to call upon any of us, lecturers and TAs alike, with questions, suggestions, or constructive criticism. Contact by telephone or e-mail is especially convenient. If you want to come in person, it is important to make an appointment in advance, or to stop by during the office hours posted for each instructor. Do not make the mistake of assuming that professors are "too busy to see students." In this course, at least, we find that to be one of the most rewarding time spent with students. Try it—you might like it!

## BIOCORE 303: CELL BIOLOGY Spring 2013 Lecture Schedule

Lecture	Date	Lecturer	Lecture Topic
---------	------	----------	---------------

### UNIT 1: Cell structure, Bioenergetics and the Flow of Energy (Dr. Katrina Forest)

1	1/23	Forest	Cells: The Unit of Life
2	1/25	Forest	Imaging Cells and Molecules
3	1/28	Forest	Cellular Chemistry and Macromolecules I: Proteins and Nucleic Acids
4	1/30	Forest	Macromolecules II: Sugars and Lipids
5	2/01	Forest	Bioenergetics: the flow of energy
6	2/04	Forest	Enzyme catalysis
7	2/06	Forest	Enzymes II
8	2/08	Forest	Membranes and Transport
9	2/11	Forest	Global energy currency: ATP and electrons
10	2/13	Forest	Glycolysis & anaerobic respiration
11	2/15	Forest	Aerobic respiration: The TCA cycle and its inputs
12	2/18	Forest	Electron transport & ATP generation
13	2/20	Forest	Photosynthesis: chloroplasts
14	2/22	Forest	Photosynthesis: carbon metabolism
15	2/25	Forest	Metabolic integration

**Review session: Monday, February 25 at 4:30 PM**

**Exam 1 (lectures 1-15): Tuesday February 26 at 7:15 PM**

### UNIT 2: Basic Genetics and the Flow of Information (Dr. Jeff Hardin)

16	2/27	Hardin	DNA: Introduction
17	3/01	Hardin	DNA: Chromatin and Replication
18	3/04	Hardin	DNA: Replication (cont) and telomeres
19	3/06	Hardin	DNA to RNA: Transcription
20	3/08	Hardin	RNA Processing and RNAi
21	3/11	Hardin	RNA to Protein: Translation and the Genetic Code
22	3/13	Hardin	Protein sorting
23	3/15	Hardin	Mutation and DNA repair
24	3/18	Hardin	Genetic Variation
25	3/20	Hardin	Manipulating DNA
26	3/22	Hardin	Genomics

*SPRING BREAK RECESS (March 23 – March 31)*

27	4/01	Hardin	Prokaryotic Gene Regulation
28	4/03	Hardin	Eukaryotic Gene Regulation
29	4/05	Hardin	Eukaryotic Gene Regulation (cont)
30	4/08	Hardin	Epigenetics and Genetic Integration

**Review session: Monday, April 8 at 4:30 pm**

**Exam 2 (lectures 16-30): Tuesday, April 9 at 7:15 PM**

Lecture	Date	Lecturer	Lecture Topic
---------	------	----------	---------------

**Unit 3: Cell Signaling, Movement, and the Flow of Intracellular Messengers (Dr. Dent)**

31	4/10	Dent	Introduction to Cell Signaling/Lingering Mysteries
32	4/12	Dent	Vesicular Trafficking I
33	4/15	Dent	Vesicular Trafficking II
34	4/17	Dent	G-protein Signaling and Second Messengers
35	4/19	Dent	Calcium and Hormonal Signals
36	4/22	Dent	Growth Factors, RPTKs and Steroid Signaling
37	4/24	Dent	The Cytoskeleton and Cell Movement
38	4/26	Hardin	Motors and Muscles I
39	4/29	Dent	Motors and Muscles II
40	5/01	Dent	Cell Adhesion and Movement
41	5/03	Dent	Cell Cycle Regulation
42	5/06	Dent	Cell Division and Apoptosis
43	5/08	Dent	Cancer I – Cell Proliferation and Spread
44	5/10	Dent	Cancer II – Oncogenes, Tumor Suppressors

**Review session: To be announced**

**Exam 3 (lectures 31-44): Monday, May 13 at 2:45 PM**

**BIOCORE 303 STAFF DIRECTORY**  
**Spring 2013**Lecturing Staff

Erik Dent	ewdent@wisc.edu	332 Medical Sci. Ctr.	262-4672
Katrina Forest	forest@bact.wisc.edu	6550 Microbial Science	265-3566
Jeff Hardin (Chair)	jdhardin@wisc.edu	327 Zoology Research	262-9634

Laboratory Staff

Janet Batzli (Co-Chair)	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Seth McGee	samcgee@wisc.edu	361 Noland Hall	262-6189
Michelle Harris (Co-chair)	maharris@wisc.edu	307 Noland Hall	262-7363
Zachary Pratt	pratt@wisc.edu	345 Noland Hall	

Collaborating Librarian

Amanda Werhane	awerhane@library.wisc.edu	119 Steenbock Library	890-2684
----------------	---------------------------	-----------------------	----------

Lecture Teaching Assistants

Kristina Blanke	kblanke@wisc.edu	524 Noland Hall	262-7431
Kimberly Dessoffy	dessoffy@wisc.edu	524 Noland Hall	262-7431
Sheryl Walker	sawalker3@wisc.edu	524 Noland Hall	262-7431

Biocore Administration

Jeff Hardin (Director)	jdhardin@wisc.edu	327 Zoology Research	262-9634
Janet Batzli (Assoc. Dir)	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Carol Borcharding (Prog. Mgr.)	clborche@wisc.edu	345 Noland Hall	265-2870

## **BIOCORE STATEMENT OF ACADEMIC INTEGRITY**

What is academic integrity and why are we promoting it? Academic integrity means being honest about your intellectual work, which is fundamental to the pursuit of knowledge. We ask you to sign this honor code as a pact between you and the Biocore Program faculty/staff to abide by the academic rules of conduct laid out by the University. Without these rules of conduct our institution would be severely limited in its capacity to function as community of higher learning. We encourage you to visit the following web-sites and get familiar with the University policy concerning Student Conduct and Disciplinary Rules

(<http://www.wisc.edu/students/saja/misconduct/misconduct.html>) As a student of the University of Wisconsin it is your responsibility to become familiar with, understand, and abide by the general Statement of Principles and Disciplinary Guidelines (<http://www.wisc.edu/students/saja/misconduct/UWS14.html>) outlined by the Dean of Students and the UW Board of Regents. These guidelines protect both you and the university if an infraction has occurred. Ignorance of these regulations is not a defense in cases of infringement. So.. Just DON'T Do It!

### **DEFINITION OF ACADEMIC DISHONESTY**

from UW Academic code 14.03 <http://www.wisc.edu/students/saja/misconduct/UWS14.html>

“Academic misconduct is an act in which a student:

- seeks to claim credit for the work or efforts of another without authorization or citation;
- uses unauthorized materials or fabricated data in any academic exercise;
- forges or falsifies academic documents or records;
- intentionally impedes or damages the academic work of others;
- engages in conduct aimed at making false representation of a student's academic performance;
- assists other students in any of these acts.

Examples include but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using notes or a programmable calculator in an exam when such use is not allowed; using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator; stealing examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet; hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with a lab experiment or computer program of another student.”

### **CONSEQUENCES FOR ACADEMIC DISHONESTY**

To determine whether academic dishonesty has occurred, the instructor and Biocore administrators will meet with the student. In Biocore, students who commit acts of academic misconduct will write letter describing what they did and, if appropriate, apologize to individuals who were involved in the incident. In alignment with the penalties listed in the University's UWS14, Student Academic Disciplinary Procedures we recognize three levels of consequences (1) An oral reprimand; and (depending on the severity of the case) written reprimand presented only to the student; or an appropriate assignment to be evaluated by the instructor or Biocore administrative staff, (2) a lower or failing grade on the assignment, exam, or course; removal of the student from the course or program; and a written reprimand included in the student's university disciplinary file, (3) recommendation for disciplinary probation for up to 2 years, suspension, or expulsion from the University.

### **BIOCORE HONOR CODE**

You will be asked to sign a statement upon entering the Biocore program during the first week of class in Biocore 301. In order to participate in the Biocore Program you must agree to the following principles:

1. I will report laboratory data honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.
2. All work that I submit under my name will be my own. I will not copy or paraphrase from another student presently or previously enrolled in this course.
3. For projects where collaboration is explicitly permitted, I will list the names of students with whom I worked.
4. I will not allow another student to copy or "borrow" my laboratory reports or other assignments.
5. I will not forge or falsify academic documents including graded assignments and examinations
6. I will strive to make Biocore a community that is based on honesty and integrity.

## Course Change Proposal

**Subject** Biology Core Curriculum (206)

**Status** Under Review by School/College

**Proposer** Janet C Batzli

### Basic Information

**Current course number**

*323*

**Current course title**

*Organismal Biology*

**Current published course description**

*Physiology course that considers how plants and animals interact with their environments to survive, obtain nutrients, exchange gases, and reproduce, also how the complex systems of neural and endocrine regulation in animals and hormonal and environmental regulation in plants allow cells and organs to communicate.*

**Chief academic officer of this unit**

*Jeffrey D Hardin*

**Designee of chief academic officer for approval authority**

*Carol L Borcharding; Janet C Batzli*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Spring 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Biology Core Curriculum (206)*

Proposed subject

Will the course number change?

*Yes*

Current course number

*323*

Proposed course number

*485*

Is this an honors course?

*Yes*

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 the title change?

*No*

Current title

*Organismal Biology*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability

**Proposed repeatability**

## Catalog Changes

**Will the credits change?**

*No*

**Current minimum credits**

*3*

**Current maximum credits**

*3*

**Proposed minimum credits**

**Proposed maximum credits**

**Will the grading system change?**

*No*

**Current grading system**

**Proposed grading system**

**Will the published course description change?**

*No*

**Current course description**

*Physiology course that considers how plants and animals interact with their environments to survive, obtain nutrients, exchange gases, and reproduce, also how the complex systems of neural and endocrine regulation in animals and hormonal and environmental regulation in plants allow cells and organs to communicate.*

**Proposed course description**

**Will the prerequisites change?**

*Yes*

**Current prerequisites and other requirements**

*Biocore 301 & 303; or cons inst*

**Proposed prerequisites and other requirements**

*Biocore 381 & 383 (or Biocore 301 & 303 previous to Spring 2014); or cons inst*



## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

*Intermediate*

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*The change in course number should not change the relationship or importance of the course to existing or future programs. The course number change is being done in coordination with changes for all course numbers in the Biocore sequence. Biocore 323 is the third lecture course in the four-semester Biocore sequence. Students progress from Biocore 301 to Biocore 303 to Biocore 323 to Biocore 333 with increasing level of difficulty and sophistication of science reasoning.*

**Are any of these programs outside your academic unit?**

Yes

**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.**

*Biochemistry (200)*

*Microbiology (192)*

*Biology (205)*

*Zoology (970)*

*Genetics (412)*

*Molecular Biology (650)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*\*Biocore 323 fulfills intermediate requirements for most biological science majors with some content equivalent to Physiology 335, 435 and Botany 500. \*Students taking Biocore should not take Biology 151/3-2.*

**Is there a relationship to courses outside your subject?**

No

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

No

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

## Justification Changes

### Explain the need for the change

*Change made in course number, introducing '4' to the first digit indicating a progression in level of difficulty from preceding Biocore courses and introducing '8' as the middle digit to indicate automatic honors coursework. This change was made in consult with L&S Honors program and is consistent with similar level courses and honors course number designations. The change will make it easier for students and advisors to recognize this as an honors course. This change is being done in coordination with changes for all course numbers in the Biocore sequence.*

### Additional comments (optional)

### Attach a syllabus

[Biocore323\\_syllabus\\_f12.pdf](#)

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

**Biocore 323: Organismal Biology  
Course Information  
Fall 2012**

**Welcome to your third semester of Biocore!!** In Organismal Biology we will build on and integrate the biological concepts you learned in Biocore 301/302 (Evolution, Ecology, and Genetics) and Biocore 303/304 (Cellular Biology), and begin to prepare you for the integrative, problem-solving nature of Biocore 333. We'll discuss how communities of cells have evolved to form whole organisms (plants and animals) and how those organisms are able to survive in a variety of environments. Our focus will be on understanding the mechanisms used in organisms to address some common issues of survival including: how cellular and tissue functions are coordinated in an organism, how essential substances are transported to and from cells, how water, salt and pH balance are maintained, how gases (O<sub>2</sub> & CO<sub>2</sub>) are exchanged and transported, how nutrients are obtained, and how organisms reproduce. Though we will not be able to cover all aspects of physiology, our objective is to help you develop a framework in which you can ask questions to learn about the physiology of organisms, both now and in the future.

---

**Course Learning Objectives**

Students will be able to:

1. explain and give specific examples to demonstrate how structure and function are related in organisms.
  2. explain and give specific examples to demonstrate how organisms sense and respond to their environment.
  3. define the components of feedback systems, propose feedback models to explain observed physiological phenomena, and explain the fundamental role that feedback systems play in regulating physiological processes.
  4. frame biological questions about physiological systems, formulate testable hypotheses to guide in answering the questions, and predict/recognize/graph data that support these hypotheses.
  5. build logical arguments about the operation of physiological systems based on evidence.
  6. use and manipulate basic mathematical equations that model physiological systems.
  7. integrate past experience, accumulated knowledge, and creativity to solve complex physiological problems.
  8. recognize and decipher relevant scientific information, and use appropriate vocabulary to describe it.
  9. demonstrate effective scientific discourse as a member of a group.
-

**Teaching Staff****Biocore 323 Instructors:**

- **Dr. Elaine Alarid**, Professor of Oncology, teaches the section on chemical signaling in animals, endocrinology. She also coordinates an interdisciplinary research focus group on steroid hormone function. She is a molecular endocrinologist who researches the actions of estrogens in reproduction and cancer.
- **Dr. Janet Branchaw**, Director of the Institute for Biology Education, teaches the sections on the cardiovascular system and osmoregulation in animals. In addition to teaching in Biocore 323 she chairs the Entering Research seminar (Biology 260/261), directs two NSF funded undergraduate research programs, and facilitates research mentor and mentee training workshops.
- **Dr. Isabelle Girard**, Animal Physiologist, teaches sections on animal neurobiology, digestion, and respiratory physiology. She works with the Research Animal Resources Center and researches endocrine function in paternal care of animals.
- **Dr. Michelle Harris** will lead off the semester with a course introduction and will be the Chair for Biocore 323 & 324. She is also the co-chair for Biocore 304 lab.
- **Dr. Heidi Kaeppler**, Professor of Agronomy, teaches the section on plant physiology. She is a molecular geneticist whose research program focuses on cereal crop molecular genetics and breeding, with emphasis on the small grains cereal crops, oat, wheat, and barley.

**Biocore 323 Teaching Assistants:**

- **E. Jane Bradbury** is a graduate student in the department of Botany studying the biochemistry of crop domestication.
- **Bryan Krause** is a graduate student in the Neuroscience Training Program.

---

**Student Board of Directors (BOD)**

The BOD consists of one representative from each discussion section and meets with the teaching team each week (Fridays @ 10:00 AM in room 327 Noland Hall) to represent feedback and questions from their peers or offer suggestions about the course. BOD representatives are responsible for communicating with their peers and write a short statement summarizing the weekly meeting in the course announcements.

---

**Textbooks**

Each instructor will give specific reading assignments from one or more of the following books:

- **Animal Physiology: From Genes to Organisms** (2<sup>nd</sup> edition) by Sherwood, Klandorf and Yancy (Brooks/Cole Cengage Learning, 2013)
- McGraw-Hill hybrid textbook: Brooker Biology & Molles Ecology excerpts
- **The World of the Cell** (8<sup>th</sup> edition) by Hardin, Bertoni, and Kleinsmith (Benjamin Cummings, 2012)

**Course specific learning materials** will be posted on Learn@UW. These will include learning guides, non-text readings, lecture images, group problems, practice problems, and answer keys.

**Scheduling and Enrollment**

	Section	Time	TA
<b>Biocore 323 lecture</b> meets at 9:30 TR in room 168 Noland Hall. <b>Biocore 323 discussion</b> meets on Mondays in room 379 Noland Hall (see sections at right). To receive credit for graded work in discussion, <b>you must attend the section for which you are registered.</b>	301	8:50am M	Jane
	302	9:55am M	Bryan
	303	11:00am M	Bryan
	304	12:05pm M	Jane
	305	1:20pm M	Bryan

306      2:25pm M      Bryan      307      3:30pmM      Jane

---

### **Biocore 323 Grades**

Biocore 323 final grades will be based on your performance on seven "mini-exams" (lasting ~30-40 minutes that you will take during discussion section), graded lecture group problems, and class attendance/participation. Physiology is cumulative by nature and each mini-exam and group problem will assume knowledge of material covered previously.

The six graded in-class group problems will occur on selected Thursdays in lecture. Your lowest graded lecture group problem score will be dropped. Your attendance at lecture and discussion, effort on in-class group problems, and peer evaluations of group work will determine 5% of your final grade. Students who are late to discussion section or to the last mini-exam will only be given the remaining time of the original time allotment to complete mini-exams-- not any additional time.

You will be assigned to a permanent group of 2-3 students for lecture. You will earn participation points for each non-graded lecture group problem. One non-graded group problem participation point will be dropped.

**NOTE:** There will be no "make ups" for missing class or the group problems done in lecture or discussion.

<b><u>Assessment</u></b>	<b><u>Date</u></b>	<b><u>Location</u></b>	<b><u>% grade</u></b>
Mini-exam 1	Monday Sept. 17	discussion	5
Mini-exam 2	Monday Oct. 1	discussion	8
Mini-exam 3	Monday Oct. 15	discussion	10
Mini-exam 4	Monday Oct. 29	discussion	12
Mini-exam 5	Monday Nov. 19	discussion	14
Mini-exam 6	Monday Dec. 3	discussion	16
Mini-exam 7 + Integr. Questions	Tuesday Dec. 18	2:45 - 4:45 PM	20
In-class group problems	(see syllabus)	lecture	10
Class attendance/participation			<u>5</u>
			Total = 100%

**Biocore 323 final grades will be determined by the absolute scale** presented at right. (Intermediate grades [AB and BC] are used at the end of the semester and only for borderline cases, at the discretion of the teaching staff.) Neither mini-exam nor group problem grades will be curved.

<b><u>Percentage</u></b>	<b><u>Letter Grade</u></b>
90.0-100	A
80.0-89.9	B
70.0-79.9	C
60.0-69.9	D

Please contact **Carol Borcharding** in the Biocore Office for questions regarding course enrollment, section changes, and correcting errors in adding points on mini-exams and group problems (no later than one week after handed back). Let her know by *September 10* if you have any special needs or religious holidays that conflict with a course activity.

---

### **\*Group Work Expectations**

You will be assigned to a permanent group of 3-4 students this semester. We expect you to sit with your group for each class meeting and to collaborate on both non-graded and graded in-class group problems. Each member of your group is expected to prepare for and make equivalent contributions to these in-class problems.

**Learning goals for Biocore 323 groups**

Students working in teams will:

1. demonstrate effective scientific discourse as a member of a group
2. demonstrate balanced contributions to their group's work
3. use relevant vocabulary and appropriate graphing skills in their group problem answers
4. encourage creativity from their teammates
5. integrate and synthesize information from lecture and assigned readings when formulating group answers

**Biocore 323 team roles**

Each member of the group will take one of the following roles each week. These roles will rotate among teammates.

- *Recorder/Reporter* – takes notes, writes final group response, reports out to whole class
- *Brainstormer* – explores options, encourages creativity in teammates, draws on information from previous lectures and readings
- *Quality Controller* – identifies weaknesses in arguments, presents alternative lines of thinking, ensures use of appropriate vocabulary and graphing conventions (i.e., axis labeling) in group answers.

\*Groups will NOT be allowed to use the Internet to solve group problems.

**Academic Honesty**

We trust you to do your own, best work on all assignments and mini-exams. Remember, you formally agreed to this when you signed the Biocore Honor Code last fall (the Honor Code is printed on the last page of this handout). If you have exceptional circumstances that prohibit you from doing your own, best work, please see us to talk about it.

**Biocore 323 Staff Directory  
Fall 2012**

**Lecture Faculty**

Elaine Alarid	alarid@oncology.wisc.edu	6151WIMR	265-9319
Janet Branchaw	branchaw@wisc.edu	109A, 445 Henry Mall	262-1182
Isabelle Girard	girard@rarc.wisc.edu	280 Enzyme Institute	265-2697
Michelle Harris, Chair	maharris@wisc.edu	307 Noland Hall	262-7363
Heidi Kaeppler	hfkaeppl@wisc.edu	461 Moore Hall	262-0246

**Lecture Teaching Assistants**

E. Jane Bradbury	ebadbury@wisc.edu	319 Birge Hall	
Bryan Krause	bmkrause@wisc.edu	4620 Medical Sciences Center	263-6662

**Biocore Administration**

Jeff Hardin, Director	jddhardin@wisc.edu	327 Zoology Research	262-9634
Janet Batzli, Assoc. Dir.	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Carol Borcharding	clborche@wisc.edu	345 Noland Hall	265-2870
Administrator			
Seth McGee	samcgee@wisc.edu	361 Noland Hall	262-6189
Lab Manager			

## **BIOCORE STATEMENT OF ACADEMIC INTEGRITY**

What is academic integrity and why are we promoting it? Academic integrity *means being honest about your intellectual work* which is fundamental to the pursuit of knowledge. We ask you to sign this honor code as a pact between you and the Biocore Program faculty/staff to abide by the academic rules of conduct laid out by the University. Without these rules of conduct our institution would be severely limited in its capacity to function as community of higher learning. We encourage you to visit the following web-sites and get familiar with the University policy concerning Student Conduct and Disciplinary Rules (<http://www.wisc.edu/students/saja/misconduct/misconduct.html>) As a student of the University of Wisconsin it is your responsibility to become familiar with, understand, and abide by the general Statement of Principles and Disciplinary Guidelines (<http://www.wisc.edu/students/saja/misconduct/UWS14.html>) outlined by the Dean of Students and the UW Board of Regents. These guidelines protect both you and the university if an infraction has occurred. Ignorance of these regulations is not a defense in cases of infringement. So.. Just DON'T Do It!

### **DEFINITION OF ACADEMIC DISHONESTY**

from UW Academic code 14.03 <http://www.wisc.edu/students/saja/misconduct/UWS14.html>

“Academic misconduct is an act in which a student:

- seeks to claim credit for the work or efforts of another without authorization or citation;
- uses unauthorized materials or fabricated data in any academic exercise;
- forges or falsifies academic documents or records;
- intentionally impedes or damages the academic work of others;
- engages in conduct aimed at making false representation of a student's academic performance;
- assists other students in any of these acts.

Examples include but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using notes or a programmable calculator in an exam when such use is not allowed; using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator; stealing examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet; hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with a lab experiment or computer program of another student.”

### **CONSEQUENCES FOR ACADEMIC DISHONESTY**

To determine whether academic dishonesty has occurred, the instructor and Biocore administrators will meet with the student. In Biocore, students who commit acts of academic misconduct will write letter describing what they did and, if appropriate, apologize to individuals who were involved in the incident. In alignment with the penalties listed in the University's UWS14, Student Academic Disciplinary Procedures we recognize three levels of consequences (1) An oral reprimand; and (depending on the severity of the case) written reprimand presented only to the student; or an appropriate assignment to be evaluated by the instructor or Biocore administrative staff, (2) a lower or failing grade on the assignment, exam, or course; removal of the student from the course or program; and a written reprimand included in the student's university disciplinary file, (3) recommendation for disciplinary probation for up to 2 years, suspension, or expulsion from the University.

### **BIOCORE HONOR CODE**

You will be asked to sign a statement upon entering the Biocore program during the first week of class in Biocore 301. In order to participate in the Biocore Program you must agree to the following principles:

1. I will report laboratory data honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.
2. All work that I submit under my name will be my own. I will not copy or paraphrase from another student presently or previously enrolled in this course.
3. For projects where collaboration is explicitly permitted, I will list the names of students with whom I worked.
4. I will not allow another student to copy or "borrow" my laboratory reports or other assignments.
5. I will not forge or falsify academic documents including graded assignments and examinations
6. I will strive to make Biocore a community that is based on honesty and integrity.



## Biocore 323: Organismal Biology Fall 2012

<u>Lecture#- Day</u>	<u>Date</u>	<u>Instructor</u>	<u>Topic</u>	<u>Reading</u>
<b>Unit 1 - Animal Control Systems</b>				
1-T	Sept. 4	Harris/Girard	Course Introduction; key physiological concepts	
2-R	Sept. 6	Girard	Neurobiology 1: Membrane Potential	Sherwood et al. Chapter 3
M	Sept. 10	Discussion		
3-T	Sept. 11	Girard	Neurobiology 2: Action Potential	Sherwood et al. Chapter 4
4-R	Sept. 13	Girard	Neurobiology 3: Synapses & Neurotransmission	
M	Sept. 17	Discussion	<b>Mini-exam 1: lectures 1- 4</b>	
5-T	Sept. 18	Girard	Neurobiology 4: Nervous System Design	Sherwood et al. Chapter 5
6-R	Sept. 20	Girard	*Neurobiology 5: Development, Learning, and Discussion	
M	Sept. 24	Discussion		
7-T	Sept. 25	Alarid	Endocrine System: General Principles of Endocrinology	Sherwood et al. Chapter 7
8-R	Sept. 27	Alarid	Endocrine System: Hypothalamic-Pituitary and Axis Control Systems	Sherwood et al. Chapter 7
M	Oct. 1	Discussion	<b>Mini-exam 2: lectures 5- 8</b>	
9-T	Oct. 2	Alarid	Endocrine System: Hormonal Control of Reproduction	Sherwood et al. Chapter 16
10-R	Oct. 4	Alarid	* Endocrine System: Dual Hormone Control System	Sherwood et al Chapter 7
M	Oct. 8	Discussion		
<b>Unit 2 – Animal Organ Systems</b>				
11-T	Oct. 9	Girard	Digestion 1: Anatomy and Absorption	Sherwood et al. Chapter 14
12-R	Oct. 11	Girard	Digestion 2: Control and Comparative Function	
M	Oct. 15	Discussion	<b>Mini-exam 3: lectures 9- 12</b>	
13-T	Oct. 16	Girard	Respiratory 1: Form, Function and Physics	Sherwood et al. Chapter 11
14-R	Oct. 18	Girard	*Respiratory 2: Gas Exchange and Control of Breathing	
M	Oct. 22	Discussion		
15-T	Oct. 23	Branchaw	CV System 1	
16-R	Oct. 25	Branchaw	CV System 2	
M	Oct. 29	Discussion	<b>Mini-exam 4: lectures 13- 16</b>	
17-T	Oct. 30	Branchaw	CV System 3	

18-R	Nov. 1	Branchaw	*Osmoregulation 1	
M	Nov. 5	Discussion		
19-T	Nov. 6	Branchaw	Osmoregulation 2	
20-R	Nov. 8	Branchaw	*Osmoregulation 3	
M	Nov. 12	Discussion		
21-T	Nov. 13	Branchaw	Integrative Example: Regulation of blood pressure	

### Unit 3 - Plant Physiology

22-R	Nov. 15	Kaeppler	Introduction, Plant form and function	
M	Nov. 19	Discussion	<b>Mini-exam 5: lectures 17- 21</b>	
23-T	Nov. 20	Kaeppler	Plant transport systems	

### *Thanksgiving Recess (Nov 22 – 25)*

M	Nov. 26	Discussion		
24-T	Nov. 27	Kaeppler	Plant hormones	
25-R	Nov. 29	Kaeppler	Embryogenesis, seedling germination and growth	
M	Dec. 3	Discussion	<b>Mini-exam 6: lectures 22- 25</b>	
26-T	Dec. 4	Kaeppler	Plant responses to environmental stimuli	
27-R	Dec. 6	Kaeppler	*Abiotic/biotic stress perception and response	
M	Dec. 10	Discussion		
28-T	Dec. 11	Kaeppler	Plant/microbe associations	
29-R	Dec. 13	Kaeppler	Finish previous topics. Possible discussion of plant genetic engineering & unit review	
Tuesday	Dec. 18		<b>Mini-exam 7: lectures 26- 29 + Integrative Questions</b>	

\* graded in-class group problem

### Textbooks:

- **Animal Physiology** (2<sup>nd</sup> edition) by Sherwood, Klandorf and Yancey (Brooks/Cole Cengage Learning Inc., 2013)
- McGraw-Hill hybrid textbook: Brooker Biology & Molles Ecology excerpts
- **The World of the Cell** (8<sup>th</sup> edition) by Hardin, Bertoni, and Kleinsmith (Benjamin Cummings, 2012)

# Course Change Proposal

**Subject** Biology Core Curriculum (206)

**Status** Under Review by School/College

**Proposer** Janet C Batzli

## Basic Information

**Current course number**

*324*

**Current course title**

*Organismal Biology Laboratory*

**Current published course description**

*Students learn plant and animal physiology by collaborating on experiments, in many cases using themselves as subjects (e.g., electrocardiograms, electroencephalograms, respiration rate). Emphasis is on critical thinking required in designing and conducting experiments and in analyzing and interpreting results.*

**Chief academic officer of this unit**

*Jeffrey D Hardin*

**Designee of chief academic officer for approval authority**

*Carol L Borcharding; Janet C Batzli*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Spring 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Biology Core Curriculum (206)*

Proposed subject

Will the course number change?

*Yes*

Current course number

*324*

Proposed course number

*486*

Is this an honors course?

*Yes*

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 the title change?

*No*

Current title

*Organismal Biology Laboratory*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability

**Proposed repeatability**

## Catalog Changes

**Will the credits change?**

No

**Current minimum credits**

2

**Current maximum credits**

2

**Proposed minimum credits**

**Proposed maximum credits**

**Will the grading system change?**

No

**Current grading system**

**Proposed grading system**

**Will the published course description change?**

Yes

**Current course description**

*Students learn plant and animal physiology by collaborating on experiments, in many cases using themselves as subjects (e.g., electrocardiograms, electroencephalograms, respiration rate). Emphasis is on critical thinking required in designing and conducting experiments and in analyzing and interpreting results.*

**Proposed course description**

*Students experience the process of science by collaborating on two multi-week independent experiments to investigate their own questions about animal and plant physiology. Emphasis is on critical thinking required in designing and conducting experiments, analyzing and interpreting data, and communicating findings orally and in writing.*

**Will the prerequisites change?**

Yes

**Current prerequisites and other requirements**

*Biocore 323 or con reg*

**Proposed prerequisites and other requirements**

*Biocore 485 (or Biocore 323 previous to Fall 2014) or con reg*

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

*Intermediate*

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*The change in course number should not change the relationship or importance of the course to existing or future programs. The course number change is being done in coordination with changes for all course numbers in the Biocore sequence. Biocore 324 is the final lab course in the three semester Biocore laboratory sequence. Students progress from Biocore 302 to Biocore 304 to Biocore 324 with increasing level of independence and sophistication of science reasoning, writing and research skills.*

**Are any of these programs outside your academic unit?**

Yes

**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.**

*Biochemistry (200)*

*Microbiology (192)*

*Biology (205)*

*Zoology (970)*

*Genetics (412)*

*Molecular Biology (650)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*\*Biocore 324 fulfills intermediate lab requirements for most biological science majors. \*Students taking Biocore should not take Biology 151/3-2*

**Is there a relationship to courses outside your subject?**

No

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

No

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

## Justification Changes

### Explain the need for the change

*Change made in course number, introducing '4' to the first digit indicating a progression in level of difficulty from preceding Biocore courses and introducing '8' as the middle digit to indicate automatic honors coursework. This change was made in consult with L&S Honors program and is consistent with similar level courses and honors course number designations. The change will make it easier for students and advisors to recognize this as progressing in difficulty within Biocore and as an honors course. This change is being done in coordination with changes for all course numbers in the Biocore sequence.*

### Additional comments (optional)

### Attach a syllabus

[\*Biocore\\_324\\_syllabus\\_2012.pdf\*](#)

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



## Biocore 324 Syllabus Fall 2012

Week	Date	Lab Activity OR Discussion Activity	Assignment Type	Weight (%)
1 (LAB)	9/4 - 7	Intro to Biocore 324 lab course: course info, teamwork & experimental design expectations <b>Intro to Unit 1: Animal Physiology</b> Jigsaw: human model system		
2 (Disc)	9/10 - 14	Writing exercise: Biorationale/Implications		
2		Writing exercise: rubric expectations Finish intro to Animal Physiology		
3 (Disc)	9/17 - 21	Refining Unit 1 project; prepare PPT proposal slides Peer review of biorationale & methods		
3		Informal PPT presentation of Unit 1 research plan <b>Unit 1 Biorationale &amp; Methods due Friday Sept. 21</b> (323 mini exam 1 Sept. 17 <sup>th</sup> )	Team Individ	√ 4
4 (Disc)	9/24 - 28	Unit 1 pilot studies & data collection Schedule week 4 or 5 individual conference with TA Stats exercise: T-tests (with worksheet)		
4		Unit 1 pilot studies Writing exercise: peer review expectations <i>Unit 1 Proposal paper assigned, students choose peer review partners</i>		
5 (Disc)	10/1 - 5	Peer review Unit 1 proposal paper & pre-stats analysis page	Individ	2
5		Unit 1 data collection UTA's: "PPT Presentation Do's and Don'ts" <b>Unit 1 proposal paper (8%) + peer review + author's response + pre-stats analysis page due Friday Oct. 5</b> (323 mini exam 2 Oct. 1 <sup>st</sup> )	Individ	8
6 (Disc)	10/8 - 12	Expanding Unit 1 project; prepare PPT proposal slides		
6		Informal PPT presentations: preliminary results + additional physiological dependent variable(s)	Team	√
7 (Disc)	10/15 - 19	Expanded Unit 1 study: pilot studies/data collection Stats exercise: ANOVA (with worksheet)		
7		Expanded Unit 1 study: pilot studies/data collection <i>Unit 1 Revised Proposal paper assigned, students choose peer review partners</i> (323 mini exam 3 Oct. 15 <sup>th</sup> )		
8 (Disc)	10/22 - 26	Peer review Unit 1 revised proposal paper	Individ	2

8		Expanded Unit 1 study: data collection <i>Unit 1 revised proposal paper (10%) + peer review + author's response</i> <i>Friday Oct. 26</i>	Individ	10
9 (Disc)	10/29 - 11/2	Mid-semester feedback evaluation Writing exercise: Discussion/Assign reading		
9		Complete expanded Unit 1 study data collection <i>(323 mini exam 4 Oct. 29<sup>th</sup>)</i>		
10 (Disc)	11/5- 9	Teams finalize PPT slides & practice Unit 1 presentations with uTAs Writing exercise: review primary literature paper		
10		<b>Team formal PPT presentations of Unit 1 projects</b> <i>Unit 1 paper/proposal assigned; students choose peer review partners</i>	Team	10
11 (Disc)	11/12 - 16	Peer review Unit 1 paper/proposal	Individ	2
11		<b>Intro to Unit 2: Plant Physiology</b> <i>Unit 1 paper OR proposal (15%) + peer review + author's response + GEA evaluation due Friday Nov. 16</i>	Individ	18
12 (Disc)	11/19 - 21	Informal PPT presentation of unit 2 project <i>Unit 2 Proposal paper assigned, peer review optional but encouraged</i>	Team	√
12		<b>No labs meet - Happy Thanksgiving!</b> <i>(323 mini exam 5 Nov. 19<sup>th</sup>)</i>		
13 (Disc)	11/26 -30	Group work time (optional peer review of Unit 2 proposal papers)		
13		Unit 2 pilot studies & data collection <i>Unit 2 proposal paper due Friday Nov. 30<sup>th</sup></i>	Individ	8
14 (Disc)	12/3 - 7	Unit 2 data collection/analysis		
14		Unit 2 data collection/analysis <i>(323 mini exam 6 Dec. 3<sup>rd</sup>)</i>		
15 (Disc)	12/10 - 14	Teams finalize PPT slides & practice Unit 2 presentations with uTAs		
15		<b>Team formal PPT presentations of Unit 2 projects</b> <b>Peer review of Unit 2 papers</b>	Team Individ	12 2
Finals week		<i>Unit 2 final paper OR revised proposal + peer review + author's response + GEA form due Dec. 17<sup>th</sup></i> <i>(323 mini-exam 7 Dec. 18<sup>th</sup>)</i>	Individ	15
	All	<b>Team &amp; Class Participation</b>	Individ	7

## Attendance

Each week you will attend a 50 minute discussion section and a 3-hour lab. You should also plan to spend time outside of regular class hours to work on literature searches, project development, data analysis, PowerPoint preparation, paper writing, and peer review.

***Collaboration on assignments***

All of your in-class work this semester will be done in permanent research teams. We expect you to discuss ideas and work through problems and analyses with your classmates, especially your teammates. You will do two formal team PowerPoint presentations, but you must write proposal and final papers on your own.

Note that because of the two formal PowerPoint presentations, **22%** of your final semester grade results from "Team" efforts. Your team & class participation grade will be determined by a variety of inputs such as your attendance, participation in class discussions (e.g., the Q&A following feedback and formal presentations), interactions with your instructors and teammates, and feedback from your GEA (Group Effort Analysis) forms. This grade will be weighted as **7%** of your final semester grade.

***Papers***

Final unit papers are to be written in the form of a scientific research paper or grant proposal and are graded using the rubric criteria described in this Biocore 324 lab manual. Collaborators must be listed on documents submitted by a research team.

***Statistics***

You and your team are expected to use appropriate statistical tests given your experimental design and hypothesis. The Biocore Statistics Primer is available on Learn@UW, under the Biocore Statistics Resources ongoing link.

***Presentations***

You and your team will give 2 formal presentations to summarize your respective research projects using the PowerPoint program. (See the 2011 Biocore Writing Manual and the Presentation rubric in the appendix of this lab manual for our expectations.) Each presentation should be 15 minutes long, followed by about 5 minutes of answering questions from your audience. Each member of the team is expected to make an equivalent contribution to the presentation and to the Q&A following the presentation. You will be given a team grade for these presentations.

Your team will also prepare and present three informal PowerPoint proposal presentations as you plan your Unit projects. These presentations are not graded, but will allow you to receive valuable feedback from your instructors and peers.

***Peer review grade***

You will have 4 opportunities to be a peer reviewer (as well as to have your papers reviewed) this semester. You will turn in a copy of the review you received with each paper along with an author's response form that briefly explains major revisions as well as what advice you took and did not take from your reviewer, and why. Your peer review grades will be based on your efforts in filling out *both the peer review and cover sheets*. Collectively the peer reviews are worth **8%** of your total semester grade. Even when not required, we strongly encourage you to use the peer review process before turning in papers.

***Logbook***

You will keep a logbook of your research activities throughout the semester (see logbook content expectations handout in this 324 lab manual for further details). You may use any bound notebook; a used carbonless chemistry notebook with plenty of empty pages will work. You may keep an electronic logbook. We reserve the right to look at your logbook at any point this semester.

***Late Assignment Policy***

Papers & assignments must be handed in on time unless you have contacted your TA *ahead of time* to request an extension due to emergency or extenuating circumstances. Otherwise, we will deduct one grade per weekday it is late from the grade you would have received (e.g., A→AB for one day late). Note that even an F paper (one week late) counts more than 0 (not handed in at all) when we total the final grades at the end of the semester. Late papers should be given directly to your TA or Michelle Harris (NOT put in a mailbox or submitted electronically).

If you know of a religious observance or other commitment this semester that will keep you from attending class, let your TA and Michelle Harris know by **September 20th**.

***How you earn your final grade***

We use an absolute grading scale in 324 (no curves!). All assignments will be evaluated and given a letter grade. Your final grade will be determined from the sum of your letter grade assignments, after each assignment is weighted as stated in the syllabus above and converted to a percentage score. Your final percentage score is converted to a final letter grade as follows:

Final Assignment %	Letter Grade
90-100	A
80-89.9	B
70-79.9	C
60-69.9	D

# Course Change Proposal

**Subject** Biology Core Curriculum (206)

**Status** Under Review by School/College

**Proposer** Janet C Batzli

## Basic Information

**Current course number**

*333*

**Current course title**

*Biological Interactions*

**Current published course description**

*Biological systems do not operate in isolation but are characterized by interactions at all levels of organization. This capstone course helps students build on and integrate the knowledge they have gained in the previous three semesters while addressing current research in topics such as signaling pathways and genetic disease.*

**Chief academic officer of this unit**

*Jeffrey D Hardin*

**Designee of chief academic officer for approval authority**

*Carol L Borcharding; Janet C Batzli*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Spring 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Biology Core Curriculum (206)*

Proposed subject

Will the course number change?

*Yes*

Current course number

*333*

Proposed course number

*587*

Is this an honors course?

*Yes*

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 the title change?

*No*

Current title

*Biological Interactions*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability

## Proposed repeatability

### Catalog Changes

#### Will the credits change?

No

##### Current minimum credits

3

##### Current maximum credits

3

##### Proposed minimum credits

##### Proposed maximum credits

#### Will the grading system change?

No

##### Current grading system

##### Proposed grading system

#### Will the published course description change?

Yes

##### Current course description

*Biological systems do not operate in isolation but are characterized by interactions at all levels of organization. This capstone course helps students build on and integrate the knowledge they have gained in the previous three semesters while addressing current research in topics such as signaling pathways and genetic disease.*

##### Proposed course description

*This capstone course helps students build on and integrate the knowledge and skills they have gained in the previous three semesters of Biocore lab and lecture coursework through readings and analysis of primary scientific literature. The course is organized such that students work in small groups to analyze current and emerging topics through the lens of scientific research. Topics include signaling pathways, systems biology, genetic disease, and cancer.*

#### Will the prerequisites change?

Yes

##### Current prerequisites and other requirements

*Biocore 301, 303, and 323; or cons inst*

##### Proposed prerequisites and other requirements

*Biocore 381, 383, and 485 (or Biocore 301, 303, and 323 previous to Spring 2014); or cons inst*

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*Yes*

Current level:

*Intermediate*

Proposed level:

*Advanced*

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*As the Biocore program capstone course, changing 333 to 587 appropriately recognizes the advanced honors level and may allow this course to fulfill capstone requirements for some majors (e.g. Biology). The course number change is being done in coordination with changes to all course numbers in the Biocore sequence. Biocore 333 is the fourth and final lecture course in the four semester sequence. Students progress from Biocore 301 to Biocore 303 to Biocore 323 to Biocore 333 with increasing level of difficulty and sophistication of science reasoning.*

**Are any of these programs outside your academic unit?**

Yes

**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.**

*Biochemistry (200)*

*Microbiology (192)*

*Biology (205)*

*Zoology (970)*

*Genetics (412)*

*Molecular Biology (650)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*\*Biocore 333 fulfills upper level requirements for some biological science majors. The course number change may allow this course to fulfill capstone requirements for some majors (e.g. Biology). \*Students taking Biocore should not take Biology 151/3-2.*

**Is there a relationship to courses outside your subject?**

No

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

No

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



## Justification Changes

### Explain the need for the change

*This is an advanced level 'capstone' course that should be recognized with 500 level designation. In addition, changing the middle digit to '8' will indicate automatic honors credit. This change was made in consult with L&S Honors program and is consistent with similar level courses and honors course number designations. The change will make it easier for students and advisors to recognize this as an advanced, capstone, honors course. This change is being done in coordination with changes for all course numbers in the Biocore sequence.*

### Additional comments (optional)

### Attach a syllabus

[333\\_course\\_Info\\_s12.pdf](#)

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

## **Biocore 333: Biological Interactions Course Information Spring 2012**

**Welcome to your fourth semester of Biocore!!** Biological Interactions is intended to help you integrate the material you have learned in the previous three semesters and apply it to some current areas of active research. We will consider four topics and will look at some of the physiology, cell biology, genetics, and biochemistry relevant to understanding these issues. The course will be focused around a series of papers from the scientific literature and will provide you with opportunities to gather information, visualize, analyze, explore, and plan strategies for the investigation of complex biological problems. The four topics are: 1. Microbial Ecology and the Human Gut led by Dr. Trina McMahon, Department of Bacteriology, and Civil and Environmental Engineering; 2. To Build a Spindle, led by Dr. Bill Bement, Department of Zoology; 3. Inheritance of Susceptibility; Colon Cancer as Genetic Disease, led by Dr. Amy Moser, Department of Human Oncology; 4. Cervical cancer; A Viral Disease, led by Dr. Anne Griep, Department of Cell and Regenerative Biology. The schedule of the units is given on page 4. Dr. Moser serves as chair of Biocore 333 and any questions about course organization should be addressed to her.

### **Course Format and Scheduling**

In this final semester of Biocore we want to give you more responsibility for your own learning. Therefore, we have structured the class to build in time for you to discuss the material in teams and less time for the faculty to lecture. The whole class meets three times per week at 11:00 MWF in room 168 Noland Hall. In addition, each of you will attend a weekly discussion section on Tuesdays. The week prior to each unit, the materials will be posted on the course website. These materials will consist of the paper(s) for the week and a study guide. In general, a topic will be introduced in lecture on Friday and the Monday lecture will provide more background material. On Tuesday in the discussion there will be a quiz, generally focusing on the methods in the papers or details that we consider essential to the topic. The remainder of discussion section will focus on techniques or concepts crucial for understanding the paper(s). On Wednesday in class you will work in teams on worksheets that pose questions based on the papers for that week. The Friday class will consist of discussion of the worksheets, summary of the week's material, and the introduction of the next week's material. **In order for this plan to work, it is essential that every one reads the assigned papers and background references before the lecture on Monday.**

You cannot make up a missed quiz or team worksheet. We will deal with illness and personal emergencies by dropping the lowest quiz and lowest team worksheet for the semester for everyone. (If you miss a quiz or worksheet you will receive a zero and that will be the score we drop. If you have more than one absence or know that you will be absent, please contact Dr. Moser or your TA.) If you are late for a Wednesday session, please note the time of arrival on the worksheet and you will receive credit only for the portion of the hour that you were present. Everyone must sign in on the worksheet on Wednesday.

As a rule, we do not post lecture notes on the website, if you miss a lecture, talk with members of your group to look at their notes. If there is a figure that is not included in the study guide or text book and is crucial for your understanding of the material, it may be posted at the instructor's discretion.

### **Focus on Cooperative Learning**

A course like this requires more planning by the faculty and more effort by you to understand the material. Why are we doing this? There are two reasons. First, our teaching goals are to help you integrate your knowledge of biological principles into a consistent internal framework and to develop skills that will allow you to work through any type of complex biological problem in the future. These skills are more important than the specific content of this course. Research on teaching and learning has shown that giving students the opportunity to work with peers to solve complex problems is the most effective way to meet these goals. Second, we want to help you develop your teamwork skills; these will be essential in your future career.

### **Team Member Roles**

You will be assigned to a group for the semester; your assignment will be given to you in the first week. Please sit with your team during the MWF class meetings. Teams work together on worksheets on Wednesdays. On other days there may be times when you will be asked to discuss an issue with your

teammates and report on your discussion. Within each group there are four “roles”. Each week you will rotate to a different role. It will be up to you and your teammates to keep track of who has what role each week. Although some people may be more comfortable in a particular role, the point of trading roles is to help you expand your skill set by trying out different roles, so please do rotate the roles. The roles are:

**Facilitator:** Makes sure everyone understands each worksheet question before discussing it, encourages everyone to participate, encourages cooperative behavior, helps the group to reach consensus.

**Monitor:** Keeps everyone on task, monitors time, moves the group along to assure that the tasks get done.

**Recorder:** Records the group's consensus answers to the worksheet questions, submits the worksheet at the end of class Wednesday.

**Challenger:** Actively participates in the discussion, questions the reasoning behind the answer (be a devil's advocate), questions the other group members to be sure the reasoning makes sense.

All members of the team are responsible for being sensitive to the feelings and level of understanding of the others, promoting group interaction, and being prepared for group meetings, including knowing what biological question is being addressed by the research paper and the scientific methods used to attempt to answer the question. If one member of the team misses class, designate a team member to call him/her and find out if there is a problem. We **strongly** suggest that you meet with your team members sometime before the class on Wednesday to discuss the papers and go over the study guides. Pay attention to the questions in the study guides! In our experience, teams that meet together before Wednesday consistently do better in the course than those that do not.

### Using Moodle for Worksheets

Rather than doing the worksheets on paper, we will be doing them online using Moodle. This will require that each group have a laptop with the Web Browser **Firefox** running—you cannot use Safari, Chrome, Internet Explorer, or any other Web Browser software if you want Moodle to work properly. If this is a problem, let Dr. Moser know and we can supply a computer if given advance warning. We will provide one paper copy of the worksheets for you to read the questions, and to be used if we have computer or internet issues. We will post the worksheet on the class website after class on Wednesday so that you can print it out and bring it to class on Friday to take notes as we discuss the answers.

### Board of Directors

We solicit student representatives who would like to represent Biocore 333 in the weekly staff meeting (on Friday immediately after lecture). These students will be the voice of the all students to let the faculty know of issues and concerns in regard to the course. One representative each week will write up “minutes” summarizing the meeting that will be included in the weekly announcements. This is a good opportunity to contribute to course improvement and student advocacy. In addition, as a BOD member, you can get to know the course faculty and instructors better.

### Texts and Reading Materials

We will make use of your previous Biocore textbooks as reference materials: Becker, W.M., Kleinsmith, L., and Hardin, J. *The World of the Cell*, 7<sup>th</sup> ed. (2009). Brooker, R.J., Widmaier, E.P., Graham, L.E., and Stiling, P.D. *Biology*, 2<sup>nd</sup> ed. (2011) and Snustad, D.P. and Simmons, M. J. *Principles of Genetics*, 5<sup>th</sup> ed. (2010).

The papers and study guides that will serve as the main texts for the course will be available on line (<http://learnuw.wisc.edu>). You are required to have copies of all of the papers and the study guides. We have prepared the study guides to help you in your reading of the papers. The study guides will list the learning objectives for each week, draw your attention to which parts of the paper are most important to understand, and provide supporting material not available in your texts. In addition, we will sometimes expand in lecture on material in the study guide and the illustrations will be helpful. The materials for each week will be available on line no later than the Wednesday of the previous week. **Bring your copies of the papers and the study guides to class every day!** If you need assistance with accessing the materials, contact your TA.

### Biocore 333 Assignments, Exams, and Grades

Your grade for Biocore 333 will be based on your performance on the 12 Tuesday quizzes, the 12 Wednesday group worksheets, and a midterm and final exam. The percentages of the grade are as follows: worksheets 45%, quizzes 10%, midterm exam 20%, and final exam 25%. Neither the course as a whole nor the various activities are curved. (Intermediate grades [AB and BC] **may** also be used, but this will be decided

by the faculty team at the end of the semester.)

<u>Percentage</u>	<u>Letter Grade</u>
100-90%	A
89-80%	B
79-70%	C
69-60%	D

### Strategies for Success

This is a challenging course and it will take you several hours to get through each of the assigned papers and the associated reference material. The study guide will list the papers for the week, topics to review, vocabulary to learn, and techniques you will be expected to become familiar with. Before you read the papers, **review** the listed materials in your texts, **look up** the vocabulary words, and **review** the techniques. The best approach is to use your study guide as a guide as you read the papers. The questions in the study guide are intended to alert you to issues we want you to think about; pay attention to those questions!

Some of the experiments described in these papers may be hard to understand, because the techniques may be unfamiliar and because the authors often assume you can follow their logic without explaining it. We point out in the study guide or in discussion section what aspects of the experiments we expect you to understand. We provide support in the study guides, introductory lectures, and discussion sessions, but your greatest source of help is your fellow team members. Plan to get together at least once before Wednesday but after you have read the paper and reference materials. Discuss each other's questions and then go over each of the figures (except those that the study guide tells you to omit) and the questions we ask in the study guide. If you haven't done this before the Wednesday class period, you may not be able to complete the worksheet in the allotted time. We structured this course around teams because a large part of learning is translating what you read and hear into your own language. You do that by talking or writing about it. Explaining a concept to a peer helps both of you deepen your understanding. Find out how well you really understand the material before the quiz and worksheet by talking about it with your teammates.

If you need help with the material, discuss it with your teammates, contact your TA during their office hours, or contact the faculty member in charge of the unit (we prefer email or talk to us before or after class, if more time is needed, we can set up a meeting). Be as specific as you can about what you do not understand. This makes it easier to help you. We anticipate that the process of understanding the papers will get easier as you become more experienced at this. However, it will continue to take time. Our goal for you by the end of this semester is to be able to critically read and understand scientific papers with limited (or no) help from us. This does not mean that you will understand everything the first time you read a paper, but rather that you will be able to identify the relevant background information that you need, recognize gaps in your knowledge, have strategies for acquiring the information you need, and then study the paper and decide whether you are convinced by the authors' conclusions. We strongly believe you will find this experience worth the effort.

### Faculty

Trina McMahon	<a href="mailto:tmcmahon@cae.wisc.edu">tmcmahon@cae.wisc.edu</a>	5552 Microbial Sciences	890-2836
Bill Bement	<a href="mailto:wmbement@wisc.edu">wmbement@wisc.edu</a>	121 Zoology Research	262-5683
Amy Moser	<a href="mailto:armoser@wisc.edu">armoser@wisc.edu</a>	6107 WIMR	265-6520
Anne Griep	<a href="mailto:aegriep@wisc.edu">aegriep@wisc.edu</a>	353 Bardeen	262-8988

### Teaching Assistants

Karl Haro von Mogel	<a href="mailto:kmogel@wisc.edu">kmogel@wisc.edu</a>	524 Noland Hall	262-6521
Laura Winkler	<a href="mailto:llwinkler@wisc.edu">llwinkler@wisc.edu</a>	524 Noland Hall	265-5390

Karl Haro von Mogel is the Administrative TA and is the one to see about administrative course issues such as planned absences or exam conflicts.

### Biocore Administration

Carol Borcharding	<a href="mailto:clborche@wisc.edu">clborche@wisc.edu</a>	345 Noland Hall	265-2870
-------------------	--	-----------------	----------

**Biocore 333: Biological Interactions  
Class Schedule  
Spring 2012**

Week	Dates	Instructor	Topic
1	1/23-1/27	Moser/McMahon	Course Introduction and Introduction to Unit 1
<b>Unit 1: Microbial Ecology and the Human Gut</b>			
2	1/30-2/3	McMahon	Our microbial selves
3	2/6-2/10	McMahon	Human microbiome community diversity and dynamics
4	2/13-2/17	McMahon	Disruption of the microbiome: causes, consequences, and corrections
<b>Unit 2: To Build a Spindle</b>			
5	2/20-2/24	Bement	Assembling a Spindle In Vitro
6	2/27-3/2	Bement	Attaching a microtubule to a chromosome
7	3/5-3/9	Bement	Powering Anaphase A
8	3/12-16	Bement/McMahon	Review, Midterm Exam and start of Unit 3
<b>Midterm Exam: Wednesday, Mar. 14 7:15-9:15PM</b>			
<b>Unit 3: Inheritance of Susceptibility: Colon Cancer as Genetic Disease</b>			
9	3/19-3/23	Moser	The role of <i>APC</i> in colon cancer susceptibility
10	3/26-3/30	Moser	Mechanisms of tumor development
<b>3/31-4/8 Spring Break</b>			
11	4/9-4/13	Moser	Exploring the consequences of loss of APC function
<b>Unit 4: Cervical cancer: A Viral Disease</b>			
12	4/16-4/20	Griep	Investigating how the HPV oncoproteins may lead to cancer: Interaction between HPV oncoproteins and tumor suppressor proteins
13	4/23-4/27	Griep	Investigating the role of the Papillomavirus oncogenes in carcinogenesis in animal models
14	4/30-5/4	Griep	Current and future directions in the prevention and treatment of cervical cancer: Vaccine development
15	5/7-5/11	Moser/Griep	Unit 3 and 4 summary, Graduation, and review
<b>Final Exam Friday May 18 10:05-12:05</b>			

## Course Change Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Current course number**

*631*

**Current course title**

*Plant Genetics*

**Current published course description**

*Problems related to higher plants, including polyploid inheritance, self-incompatibility, cytoplasmic inheritance, mutable alleles, complex loci, genome analysis, recombination and mutagenesis.*

**Chief academic officer of this unit**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Fall 2013-2014*

## Basic Changes

Will the subject change?

*No*

Current subject

*Genetics (412)*

Proposed subject

Will the course number change?

*No*

Current course number

*631*

Proposed course number

Is this an honors course?

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

Will the title change?

*No*

Current title

*Plant Genetics*

Proposed title (max. 100 chars.)

Proposed transcript title (max. 30 chars.)

Will the crosslistings change?

*No*

Current crosslistings

Proposed crosslistings

Will the "repeatability" of the course change?

*No*

Current repeatability

**Proposed repeatability**



## Catalog Changes

### Will the credits change?

Yes

#### Current minimum credits

3

#### Current maximum credits

3

#### Proposed minimum credits

2

#### Proposed maximum credits

2

### Will the grading system change?

No

#### Current grading system

#### Proposed grading system

### Will the published course description change?

Yes

#### Current course description

*Problems related to higher plants, including polyploid inheritance, self-incompatibility, cytoplasmic inheritance, mutable alleles, complex loci, genome analysis, recombination and mutagenesis.*

#### Proposed course description

*This is a graduate-level course in plant genetics. We will cover the basic concepts of genetics and genomics as applied to plants, including discussions on breeding systems (modes of reproduction, sex determination, self incompatibility and crossing barriers), linkage analysis, genome structure and function (structure, function and evolution of nuclear and organellar chromosomes; haploidy and polyploidy; expression regulation and epigenetics), and a description of current methodologies used in the analysis of these processes. Our objective is to instigate in students a broader knowledge and understanding of the principles and methodologies used in plant genetics such that they can adopt them most effectively in their own research projects, and can describe and discuss them more thoroughly with the general public. This course is based on lectures and in-class discussions of assigned readings.*

### Will the prerequisites change?

Yes

#### Current prerequisites and other requirements

*Genetics 561*

#### Proposed prerequisites and other requirements

*Genetics 466 or equivalent*

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

*Advanced*

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

*B-Biological Science*

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*Plant Genetics 631 has been a component of the Plant Breeding and Plant Genetics (PBPG) Core Curriculum for many years. Dr Kermicle used to teach it. When he retired, we consulted with several plant geneticists in various departments (John Doebley, Genetics; Michael Havey, Horticulture; Tony Bleecker, Botany; Rick Amasino, Biochemistry) on ways to continue teaching Plant Genetics and make it more attractive to a larger population of students from various graduate programs on campus while retaining its appeal to the PBPG program. From these discussions, it ensued that reducing the number of credits from three to two would likely attract more students from programs that did not include Plant Genetics as a strict requirement, yet would still benefit from it, while still allowing a sufficiently broad coverage of the main concepts of Plant Genetics to continue fulfilling the needs of the PBPG program. To accomplish this reduction in numbers of credits, we agreed on deleting topics that were covered in the previous version of the course even though they were covered in other classes, such as the Genetics of Plant-Pathogens Interactions (covered in Plant Pathology classes). We then decided to teach this course as a Special Topics in Genetics (875): Plant Genetics, which we have offered since the Fall of 2003, on a biennial basis (every Fall semester of odd years). We also decided to cover the most recent advances in Plant Genetics by assigning important and recent papers from the primary literature as readings for each lecture, and discussing them in class. This course has been well attended and received by the students. It has also been accepted as a valid replacement for 631 in the PBPG curriculum, with the understanding that we would eventually incorporate the revised material and reduced number of credits into Plant Genetics 631. However, students are often confused by the fact that the PBPG curriculum includes a Plant Genetics 631 course that does not seem to be taught any more, whereas a Plant Genetics 875 module is offered but not included in the curriculum. Consequently, we would like to reduce the number of credits associated with Plant Genetics 631 from three to two, and use this revised Genetics 631 course to cover the same material that we have efficiently presented and improved over the years as Special Topics (Plant Genetics) 875 material. Special Topics 875: Plant Genetics, has also been considered as an elective for several other Graduate programs, such as Genetics, Botany, CMB, Forestry. The proposed change should not impact these programs. Regarding the suggested change in prerequisites for Plant Genetics 631, the previously taught material we deleted in the revised version required a higher-level prerequisite course that is no longer needed. Therefore, an introductory genetics course such as General Genetics 466 or equivalent is now sufficient background for our revised Plant Genetics 631 course.*

**Are any of these programs outside your academic unit?**

*Yes*

**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.**

*Forest And Wildlife Ecology (396)  
Agronomy (132)  
Botany (208)  
Horticulture (476)*

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

*No change in requirements*

**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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*This is the only course on the Madison campus that covers the general concepts of Plant Genetics, a discipline of critical importance for these programs/units.*

**Is there a relationship to courses outside your subject?**

*No*

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

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

Yes

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

*Special Topics 875 (Plant Genetics)*

## Justification Changes

Explain the need for the change

*Justification provided under Additional Information.*

Additional comments (optional)

Attach a syllabus

*Genet 631 syllabus.pdf*

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

**Syllabus**  
**Plant Genetics**  
Genetics 631  
Fall 2013

**Instructors:**

Patrick H. Masson	Michael Havey
Laboratory of Genetics	Department of Horticulture
Genetics/Biotech, Room 3262	Moore Hall-Plant Sciences Room 395
425-G Henry Mall	1575 Linden Dr
Madison, WI 53706:	Madison, WI 53706
Tel: 265-2312	Tel: 262-1830
E-mail: <a href="mailto:phmasson@wisc.edu">phmasson@wisc.edu</a>	E-mail: <a href="mailto:mjhavey@wisc.edu">mjhavey@wisc.edu</a>

**Time:** Tuesdays and Thursdays, 12:05 -12:55 PM

**Location:** Room 1441, Genetics/Biotech (425-G Henry Mall)

**Course Description / Learning Objectives:** This is a graduate-level course in plant genetics. We will cover the basic concepts of genetics and genomics as applied to plants, including discussions on breeding systems (modes of reproduction, sex determination, self incompatibility and crossing barriers), linkage analysis, genome structure and function (structure, function and evolution of nuclear and organellar chromosomes; haploidy and polyploidy; expression regulation and epigenetics), and a description of current methodologies used in the analysis of these processes. Our objective is to instigate in students a broader knowledge and understanding of the principles and methodologies used in plant genetics such that they can adopt them most effectively in their own research projects, and can describe and discuss them more thoroughly with the general public. This course is based on lectures and in-class discussions of assigned readings.

**Prerequisite:** Genetics 466 or equivalent.

**Course Format and Expectations*****Lectures and Discussions***

For each 50-min class period, approximately 35 min will be devoted to lectures, and 15 min will be spent discussing the assigned readings. Each student should plan to participate in the discussions by reading the assigned papers before coming to class, and preparing important points and questions to bring into the discussion. This active-learning format will help students better understand the concepts presented during the lectures, and also illustrate the application of taught concepts in modern plant genetics. Lectures and readings will be posted at Learn@UW.

***Attendance***

Attendance is mandatory.

***Evaluation***

Three homework assignments will help measure student learning in this class. No additional exams will be

assigned. The homework assignments will focus on either resolving assigned problems or discussing questions related to assigned papers. Homework assignments will constitute 100 possible points (35 points for each of homeworks 1 and 2, and 30 points for homework 3, based on the total number of lectures covered in each homework: see the schedule). Final grades in the A-F scale will be assigned based on the distribution of student point totals. A typical conversion scale between final points and letter grades might be: 80-100 = A; 75-79 = AB; 65-74 = B; 60-64 = BC; 55-59 = C; 50-54 = D; 0-49 = F.

## Office Hours

Students are encouraged to request one-on-one meetings with the instructors to discuss any of the materials covered in this class. Such meetings can be scheduled via e-mail, phone, or direct request after class.

Date	Topic	Subtopic	Instructor	Reading/Homework
Sep 3	Breeding Systems	Modes of Reproduction	Masson	Sprunck <i>et al.</i> (2012) <i>Science</i> 338, 1093
Sep 5		Sex Determination	Masson	Wang <i>et al.</i> (2012) <i>PNAS</i> 109:13710-13715
Sep 10		Self Incompatibility and Crossing Barriers I	Masson	Tantikanjana and Nasrallah (2012) <i>PNAS</i> 109:19468-73.
Sep 12		Self Incompatibility and Crossing Barriers II; Apomixis	Masson	Marimuthu <i>et al.</i> (2011) <i>Science</i> 331: 876
Sep 17	Linkage Analysis	Recombination	Masson	Toyota <i>et al.</i> (2011). <i>The Plant Journal</i> 65, 589–599
Sep 19		Linkage from F2 Data	Masson	Problems (posted on learn@uw)
Sep 24		Linkage from F2 Data: ML Approach	Masson	Problems (posted on learn@uw)
Sep 26		Molecular Markers	Masson	Seren <i>et al.</i> (2012) <i>Plant Cell</i> 24:4793-4805. <b>Homework 1 questions handed out</b>
Oct 1		QTL Analysis and Genome Wide Association Studies	Masson	Li <i>et al.</i> (2013) <i>Nat Genet</i> 45: 43-50 Ben-Israel <i>et al.</i> (2012) <i>PLoS One</i> 7:e38993
Oct 3	Genome Structure and Function	Chromosome Structure	Masson	Brenchley <i>et al.</i> (2012) <i>Nature</i> 491:705-10 <b>Homework 1 Due</b>
Oct 08		Transposable Elements I	Masson	Tovkach <i>et al.</i> (2013) <i>Plant Physiol</i> 161: 880-892
Oct 10		Transposable Elements II	Masson	Lisch (2013) <i>Nat Rev Genet</i> 14: 49-61
Oct 15		Evolution of Chromosomes: Synteny	Masson	Zheng and Sankoff (2012) <i>BMC Bioinformatics</i> 13 (Suppl 10): S9
Oct 17		Evolution of Chromosomes: Meiotic Drive	Masson	Yang <i>et al.</i> (2012) <i>Science</i> 337, 1336-1340
Oct 22		Polyploidy I	Havey	Special issue of <i>New Phytologist</i> , vol. 186 (April 2010) on plant polyploidy
Oct 24		Polyploidy II	Havey	"
Oct 29		Haploidy	Havey	Ravi1 and Chan (2010) <i>Nature</i> 25, 615-618
Oct 31		Organellar Genetics I	Havey	<b>Homework 2 Questions Handed Out</b>
Nov 5		Organellar Genetics II	Havey	Woloszynska (2010) <i>J Exp Botany</i> 61, 57–671

Nov 7		Organellar Genetics III	Havey	<b>Homework 2 Due</b>
Nov 12		Regulation of Gene Expression: Transcriptional	Masson	Tsuji et al. (2013). <i>Curr Opin Plant Biol</i> 16: 1-8
Nov 14		Regulation of Gene Expression: Posttranscriptional	Masson	Kloosterman et al. (2013). <i>Nature</i> doi: 10.1038/nature11912 [Epub ahead of print]
Nov 19		Epigenetics I	Masson	McCue et al. (2012). <i>PLoS Genet</i> 8(2): e1002474
Nov 21		Epigenetics II	Masson	Schmitz et al. (2011) <i>Science</i> 334: 369-373
Nov 26		Epigenetics III	Masson	Wang et al. (2013) <i>PLoS Genet</i> 9: e1003255
Nov 28		Thanksgiving Recess		
Dec 3	Experimental Approaches	Forward Genetics	Masson	Austin R et al. (2011). <i>Plant J</i> 67: 715-25
Dec 5		Reverse Genetics	Masson	Bush SM and Krysan PJ (2010). <i>Plant Physiol</i> 154(1): 25-35 <b>Homework 3 Questions Handed Out</b>
Dec 10		Reverse Breeding	Masson	Dirks et al. (2009) <i>Plant Biotech J</i> 7: 837-845
Dec 12	Somatic Cell Genetics	Mosaic Analysis	Masson	Furner et al. (2008) <i>Plant J</i> 53: 645-660 <b>Homework 3 Due</b>

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Christopher D Day

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Freshmen Seminar*

**Transcript Title (limit 30 characters)**

*Freshman Seminar in Genetics*

**Three-digit course number**

*155*

**Is this an honors course?**

*No*

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

*No*

**Will this course be crosslisted?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Spring*



## Catalog Information

**Minimum credits**

1

**Maximum credits**

1

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*This seminar will introduce freshman to the discipline of genetics, to the UW Laboratory of Genetics, to some of the research projects the faculty are pursuing, to resources available at UW-Madison, and to the career options open to an individual with a genetics undergraduate degree.*

**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**

*Discussion*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Pat Litza*

**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 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.)

*It will serve undeclared students in CALS who have an interest in the genetics major. It will serve students who have declared for the genetics major and are interested in discussing topics in genetics with their peers in the major.*

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 satisfy the CALS freshman seminar 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

*As most freshman genetics majors are not able to begin taking biology courses until their sophomore year, this course is designed to give the students some exposure to current biology topics and the basic principles of genetics. The format uses both lectures and small groups discussions to enable students to become more familiar with the topics and to develop critical thinking skills. In addition, the course covers topics that will help students succeed in college, such as time management skills and college resources. Finally, students are required to work with their peers on projects that are designed to foster interaction with the genetics faculty. The overall goal is to initiate a learning community that includes all genetics majors and faculty.*

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

*This course is similar to other freshman seminar available in CALS and duplicates many of the goals, especially ones that help the students become more familiar with resources on campus. It is distinct to the other courses in that we view many of the exercises through the lens of a Genetics major.*

### 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)

*Christopher Day, Christopher Tilmann, Jean Petersen*

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.

*Christopher Day, Faculty Associate and Undergraduate Advisor; Christopher Tilmann, Associate Faculty Associate and Undergraduate Advisor; Jean Petersen, Student Services Coordinator*

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

*Genetics155 Spring.pdf*

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course, or a similar version, has been listed as Genetics 375 for over 10 years. This updated version of the course was recently endorsed by CALS as fulfilling the criteria for a freshman seminar in the college.*

**Provide an estimate of the expected enrollment**

*70*

**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**

*Meets weekly for 1.5 hrs. Including take home assignments and projects, time effort dedicated to this course averages about 3 hrs per week.*

**If this is a variable credit course, provide rationale**

**Additional comments (optional)**

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

*Chris Day full CV 2013.pdf*

*Tilmann CV.pdf*

*Petersen\_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?**

**Genetics 155**

Genetics 155 – Spring  
 Room 1441 Genetics/ Biotech  
 Tuesday 3:30 – 5:00 pm

**Instructors:**

Chris Day  
 2422 Gen/ Biotech  
 265-2865  
 cday2@wisc.edu

Jean Petersen  
 1426 Gen/ Biotech  
 265-9285  
 jmpeter2@wisc.edu

Kit Tilmann  
 1428 Gen/ Biotech  
 263-7580  
 cetilmann@wisc.edu

**Course description and objectives:**

Genetics 155 is a one credit course for freshman genetics majors. Since most freshman genetics majors are not able to begin taking biology courses until their sophomore year, this course is designed to give you some exposure to current biology topics and the basic principles of genetics. In addition, the course will cover topics that will help you succeed in college, such as time management skills and college resources. We also hope that you use this course to get to know your fellow students and the genetics faculty. In the future, many of you will be satisfying your research requirement by working in a faculty member's lab.

**Learn@UW** This course will be managed using Learn@UW. At this site, you will find the syllabus and all supporting materials. All out-of-class assignments will be posted to the drop box; all discussion statements will be posted to the quiz section. Statements must be posted by **12 noon** on the date identified or will be considered late. The opportunity to post statements will no longer be available after 12 noon on the due date. Late statements must be handed in to faculty; 5 points per day will be deducted for late statements.

**Grading:**

The course is graded on the conventional A-F system. Up to 1000 points can be earned from the assignments. The grade thresholds are:

A	900 points or more
AB	850-899 points
B	800-849points
BC	750-799 points
C	700-749 points
D	600-699 points
F	less than 600 points

**Discussion Statements:** (all required)

(The lowest grade for one of the discussion statements will be dropped.)

Epigenetics discussion summary statement (due 2/26)	100
Sex determination discussion summary statement (due 3/5)	100
Stem Cells discussion summary statement (due 4/2)	100
Genetics Counseling discussion summary statement (4/23)	100

Bioethics discussion summary statement (due 5/7)	100	<b>400</b>
--	-----	------------

**Video project;** in class presentation May 7 **300**

**Out-of-Class assignments statements/reflections** (choose 4 different assignments)

(75 points per statement; any 2 are due on April 2; the remainder are due on April 30)

- Attend a Genetics colloquium seminar
- Attend the CALS Career Fair (Feb 4)

Attend a Wednesday Night at the Lab presentation  
 Visit with Center for pre-Health advising  
 Attend a UGA meeting  
 Attend a Darwin Day event (Feb 16)  
 Attend Undergraduate Research Symposium (Apr 18)  
 Visit International Academic Programs Office

**300****Total Points****1000**

## Point Clarification:

1. Class attendance is required. There will be a sign in sheet at each lecture and discussion. Missing one session will reduce your grade by 50 points; two by 100 points; three sessions by 150 points. Missing four or more sessions will result in failing the course. Excused absences are possible under unusual conditions or serious illness. Contact one of the course directors **prior** to the class period that you will be forced to miss.
2. Statements will be graded on: content, clarity and writing skills.

**Course schedule**

<b>Date</b>	<b>Topic</b>	<b>Reading/ Assignment</b>
Jan. 22 <sup>nd</sup>	Introductions (staff and students), syllabus overview, out-of-class assignments, overview of video assignment	
Jan. 29 <sup>th</sup>	Genetics warm-up; concept maps; career fair preparation	
Feb. 5 <sup>th</sup>	Hasan Khatib-Epigenetics and cow model system	
Feb. 12 <sup>th</sup>	Epigenetics discussion; Meet with small groups:	Epigenetics Statement due 2/26
Feb. 19 <sup>th</sup>	Joan Jorgenson – Sex Determination	
Feb. 26 <sup>th</sup>	Sex determination discussion	Sex Determination Statement due 3/5
Mar. 5 <sup>th</sup>	Academic Success Strategies BuckyNet, resume writing, letters of recommendation, Genetics careers, Writing Center, Certificates	
Mar. 12 <sup>th</sup>	Stem cells, Anita Bhattacharyya	
Mar 19 <sup>th</sup>	Stem cells discussion: Meet with small groups: Video prep time	Stem Cells Statement due 4/2

Mar 25 <sup>th</sup> -29 <sup>th</sup>	Spring Break	
Apr 2 <sup>nd</sup>	Peer Panel How to find a research mentor	Be prepared to work with your video team Any 2 out-of-class assignments due
Apr. 9 <sup>th</sup>	Genetic counseling, Casey Reiser	
Apr. 16 <sup>th</sup>	Genetic counseling discussion; role-playing activity	Genetic Counseling Statement due 4/23
Apr. 23 <sup>rd</sup>	Scientific Inquiry	Remaining 2 out-of-class assignments due
Apr. 30 <sup>th</sup>	Bioethics discussion; Meet with small groups: Video prep time	Be prepared to work with your video team Bioethics statement due 5/7
May 7 <sup>th</sup>	Video presentations	

**Out-of-Class Assignments** (choose 4 different assignments and submit a reflection on your experience to Learn@UW site; each reflection is worth 75 points):

**General instructions:** please clearly identify your name and assignment title on your document.

Any 2 are due by April 2; the remaining 2 are due on April 23. You may submit out-of-class assignment as you finish them; the dates are deadlines.

Attend a Genetics colloquium seminar: Wednesdays at 3:30pm in room 1111 Genetics Biotechnology Center. Each Wednesday, the Genetics Department hosts a guest lecturer; many guests are from around the country. The speaker and title can be found here: <http://www.genetics.wisc.edu/node/577>. Prepare a summary and reflection of what you learned to Learn@UW. You will likely find that you do not understand much of the lecture. That's OK. Try to summarize the big ideas of the lecture. What is your impression of the audience? Were there interesting questions raised? Are you motivated to learn more about the topic?

Attend the CALS Career Fair (Feb 4): Kohl Center (4:00- 8:00pm). This is an opportunity for you to learn about possible careers and internships in genetics. Dress is business casual (Business casual means dressing professionally, looking relaxed yet neat and pulled together). Prepare a summary and reflection of what you learned to Learn@UW. Identify who you talked with and their organizations as part of your summary. What potential careers did you see at the Career Fair? Potential careers do NOT have to include genetics. Are there other careers that you might want to consider exploring?

Attend a Wednesday Night at the Lab presentation; Wednesdays, from 7:00-8:15pm, room 1111 Genetics Biotechnology Center. Wednesday Nights at the Lab is an outreach program to the community. UW-Madison researchers deliver a "public lecture" focusing on their research and how it impacts people. Prepare a summary and reflection of what you learned to Learn@UW. Identify who delivered the talk and the big ideas. How does the researcher's work impact general knowledge? How important is Science knowledge to people?

Visit with Center for pre-Health Advising; <http://www.prehealth.wisc.edu/> Meet with a pre-Health adviser and find out what you need to be doing each year to be ready for a Health career. What things do you need to do outside of the classroom to make yourself more competitive for a Health career? Besides your science curriculum, what elective courses would be appropriate for you as a pre-Health career student?

Attend a UGA meeting. (for meeting schedule go here: \_\_\_\_\_)  
What happened at the meeting you attended? What opportunities are available for you as a member? What experiences have the officers and other members had as Genetics majors that you might consider pursuing? What leadership skills can undergraduates hone as a member of a student organization? What leadership roles are available in the UGA?

Attend a Darwin Day event: <http://www.evolution.wisc.edu/node/155>. This annual community outreach event is scheduled near Darwin's birthday (Feb 14-16) and features a variety of workshops, movies, and talks at the Wisconsin Institutes for Discovery. Attend at least one event and describe it. What new thing about evolutionary biology did you learn about? How important is science outreach to the general public?

Visit CALS International Programs Office; <http://ip.cals.wisc.edu/> or UW-International Academic Programs <http://www.studyabroad.wisc.edu/>. Learn about study abroad opportunities. What programs might interest you? How would this opportunity be financed? What types of classes could you take? Are there opportunities for you to volunteer or be engaged in research?

Attend CALS Undergraduate Research Symposium (GETTING DATE FROM JOHN KLATT - April 17, 2012, Microbial Sciences Building 1<sup>st</sup> floor atrium) . Check out the mentored research that CALS undergraduates have been doing. Talk with the student researchers about their projects and what they think of the experience. What did the students learn about themselves as they engaged in research? How important is having this experience as part of your undergraduate curriculum? Regardless of your potential career, how does an experience such as mentored research make you more "marketable"?

### **Video Assignment** (300 points)

The goal of this assignment is to produce a short video (5-6 minutes) that summarizes a professor's research interests and captures what an undergraduate research experience might entail. How you choose to present this information is up to you. We encourage you to be creative.

Each group will have 5 members (a production manager, an artistic director, a science writer, an interviewer, and a technical expert). Each member must engage in the science and be familiar with the topic. You will need to find a professor on campus, preferably one who uses genetics in his/her research, and who is willing to participate in this project. A starting point for identifying labs of interest to use is the genetics department website (<http://www.genetics.wisc.edu/>).



## *Curriculum Vitae*

Christopher David Day

<b>Address</b>	Laboratory of Genetics University of Wisconsin-Madison 425-G Henry Mall, Rm 2422 Madison, WI 53706	<b>DOB</b>	March 21st, 1965
<b>E-mail</b>	cday2@wisc.edu	<b>Tel.</b>	608-265-2965

### **Employment and Education**

08/07-present	University of Wisconsin at Madison. Faculty Associate. Department of Genetics
08/02-08/07	University of Wisconsin at Madison. Assistant Prof. Department of Botany,
08/96 - 08/02	Plant Gene Expression Center, Berkeley Postdoctoral Associate in Dr. David Ow's laboratory
11/92 - 07/96	Yale University Postdoctoral Associate in Dr. Vivian Irish's laboratory
10/87 - 10/92	Edinburgh University Graduate student in Professor Christopher Leaver's laboratory. Ph.D. thesis: The mitochondrial adenine nucleotide translocator from <i>Zea mays</i> , gene structure and expression.
10/83 - 06/87	Edinburgh University Undergraduate degree in Biological Sciences, B.Sc. 2.1 Hons.

### **Brief Summary of Research Experience**

At Madison my laboratory research focused on plant development, specifically studying genes and mutants that involved in controlling cell endoreduplication and the role of this process in organ size. My research training is in the areas of plant molecular biology and biochemistry (Ph.D. with Prof. C.J. Leaver), as well as plant development and genetics (postdoc with Dr. V.F. Irish). My research in Dr. Irish's lab was on investigating the cellular and genetic interactions that occur during floral development. At the USDA, I worked in Dr. D.W. Ow's laboratory and developed site specific recombinase systems to use as a tool for genome analysis and crop improvement.

## Teaching Experience

### Current teaching

#### **Inter Ag 155; Fall 2009-present**

Freshman seminar for CALS students (1 credit). I facilitate one of the small break out groups for ten students.

#### **Genetics 375; Spring 2008-present**

Freshman Seminar for genetics students (1 credit). I give some presentations in the course and help to invite outside speakers, for about 60 students.

#### **Genetics 160; Fall 2007-present**

Designed to be attractive for non-majors interested in science (3 credits). I teach 43 lectures and administrate the course, for about 120 students

#### **Genetics 466; Summer 2009-present**

Advanced genetics core course (3 credits). I TA'ed the course in 2009 and taught 1/4 of the lectures in 2010; for about 80 students.

#### **Capstone Genetics 566; Spring 2009-present**

For seniors majoring in genetics (3 credits). I will be co-course chair from 2011, for about 70 students.

#### **Biology 260/261; Fall/Spring 2008-present**

For sophomore students who are entering research laboratories (1 credit). A course developed by the Center for Biology Education. I facilitate one of the weekly sections for 10 students.

#### **Genetics 840; Fall 2004, 2006, 2010**

For graduate students (3 credits) I teach 8 lectures, for about 15 students.

### Previous teaching experience

#### **Introductory Biology, 2003-2007**

I taught in Biocore 303 (spring) and Biocore 323 (fall), two of the four courses taken by honors students at Madison. There are about 140 students and the teaching philosophy promotes interactive learning. Teaching and exams are concerned with making students think as opposed to regurgitating the information. In 2005, I initiated more active teaching during the lectures using wireless class room performance (CPS) feed back devices.

#### **Graduate level**

Between 2003 and 2007 I taught a 960 seminar course (1 credit) for graduate students.

### Advising

#### **Undergraduate**

I have been advising undergraduate students in the Biology Major since 2003 and the Genetics Major since 2007. I am currently advising 75 students.

## Service

Genetics Curriculum Committee, 2008-present  
CALS International Committee 2008-present  
Biology Major Executive Committee 2012-present  
Botany Curriculum Committee, Fall 2004, Spring 2005, Fall 2006  
Faculty Liaison (2003-2007)- Botany Club and Minorities  
Partners in Giving (SECC) coordinator, 2003-2007  
Social Committee (Botany) 2003-2007  
TA assignment Committee (Botany), Fall 2005

## Summer Institute for NRC

I was invited to participate in the National Research Councils Undergraduate Biology Education Pilot Summer Institute 2003. This was a fact finding experimental workshop before the first workshop in 2004. The goal of the Summer Institute is to promote the use of active teaching/learning techniques in the undergraduate lecture theatre.

## Scientific Publications

Larson-Rabin, Z., Li Z., Masson, P.H. and Day, C.D. (2009) FZR2/CCS52A1 Expression Is a Determinant of Endoreduplication and Cell Expansion in Arabidopsis. *Plant Physiology* 149 (2) 874-884.

Irish, V.F. and Day, C.D. (2005) A weed for all reasons. *Genome Biology* 6, 350

Baum, D.A. and Day, C.D. (2004) Cryptic bracts exposed: insights into the regulation of leaf expansion. *Dev Cell*. 6, 318-9.

Day, C.D., Lee, E., Kobayashi, J., Holappa, L., Albert, H., and Ow, D. (2000). Transgene integration into the same chromosome location can produce alleles that express at a predictable level, or alleles that are differentially silenced. *Genes and Development* 14, 2869-2880.

Hill, T.A., Day, C.D., Zondlo, S.C., Thackeray, A.G. and Irish, V.F. (1998). Discrete spatial and temporal cis-acting elements regulate transcription of the Arabidopsis floral homeotic gene APETALA3. *Development* 125, 1711-1721.

Day, C.D. and Irish, V.F. (1996). Genetic ablation as a tool for studying plant development. *Trends in Plant Science* 2, 106-111.

Irish, V.F., Day, C.D., Carr, S., Hill, T., Jenik, P. and Wright, E. (1996). Petal and stamen development during floral development. *Flowering Newsletter* 21, 21-26.

Day, C.D., Galgoci, B.F.C. and Irish, V.F. (1995). Genetic ablation of petal and stamen primordia to elucidate cell interactions during floral development. *Development* 121, 2887-2895.

Winning, B.M., Sarah, C.J., Purdue, P.E., Day, C.D. and Leaver, C.J. (1992). The adenine nucleotide translocator of higher plants is synthesized as a large precursor that is processed upon import into mitochondria. *Plant Journal* 2, 763-773.

Winning, B.M., Day, C.D., Sarah, C.J. and Leaver, C.J. (1991). Nucleotide sequence of two cDNAs encoding the adenine nucleotide translocator from *Zea mays*. *Plant Molecular Biology* 17, 305-307.

### **Invited Presentations at Universities and Companies**

Lawrence University, WI 2005  
University of Florida 2001  
University of Oregon 2001  
University of Wisconsin at Madison 2001  
Cornell University 2001  
New York State Agricultural Experiment Station 2001  
Pennsylvania State University 2001  
University of Tennessee 2001  
Oxford University, UK, 2000  
Cold Spring Harbor Laboratories 1999  
DNA Plant Technology Corporation, CA, 1998.  
Edinburgh University, UK, 1995.  
Glasgow University, UK, 1995.  
New York University, 1994.

### **Conferences (Oral Presentations)**

Day, C.D. (2008) Workshop on New Communication Channels for Biology, San Diego, CA

Chaired the Evolution and Development session at the American Genetics Association meeting. (2005)

Day, C.D., Holappa, L., Albert, H., Kobayashi, J., Lee, E. and Ow, D. (1998). Transgenes that are integrated into the same genomic *lox* site show variable expression. FASEB- Mechanisms in Plant Development, Vermont.

Day, C.D., Holappa, L., Albert, H., Kobayashi, J., Lee, E. and Ow, D. (1997). Epigenetic control of transgenes targeted to a specific genomic site. Society of In Vitro Biology Meeting, Washington D.C.

Day, C.D., Miller, R. and Irish, V.F. (1994). Genetic cell ablation to analyze cell interactions during *Arabidopsis* floral development. New York Regional Plant Conference.

Day, C.D., Miller, R. and Irish, V.F. (1994). Genetic cell ablation to analyze cell interactions during *Arabidopsis* floral development. International Society for Plant Molecular Biology meeting, Amsterdam.

## **CHRISTOPHER EDWARD TILMANN, Ph.D.**

Associate Faculty Associate  
University of Wisconsin  
Department of Genetics  
425G Henry Mall  
Madison, WI 53706  
work: (608) 263-7580  
fax: (608) 262-2976  
email: cetilmann@wisc.edu

### **Education**

---

- 1995 - 2001      Duke University, Department of Cell Biology, Durham, NC  
Ph.D., Fall 2001.  
Thesis topic: The cellular and molecular basis of testis cord formation in the  
mammalian gonad.
- 1991 - 1995      Florida State University, Tallahassee, FL  
Bachelor of Science, Biology, Spring, 1995. GPA 3.7/4.0

### **Teaching Experience**

---

- 2010 - present      Associate Faculty Associate, University of Wisconsin-Madison, Department  
of Genetics.  
Courses taught:  
Genetics Laboratory  
Freshman Seminar in Genetics  
Issues in Agriculture, Environment, and Life Sciences (discussion leader)
- 2005 - 2010      Assistant Professor, Loyola University Maryland, Department of Biology  
Courses taught:  
Introduction to Cell and Molecular Biology with lab  
General Genetics with lab  
Molecular Genetics with lab/ seminar  
Developmental Biology with lab  
Organismal Biology
- 2004                  Guest Instructor, University of Wisconsin, Undergraduate Genetics
- 2003 - 2005      Mentor to undergraduate researchers, University of Wisconsin.
- 1997 - 1999      Teaching Assistant, Duke University.  
Courses taught:  
Undergraduate level cell biology, development, and genetics  
Graduate level genetics

1994 - 1995	Lab Instructor, Teaching Assistant, Florida State University. Courses taught: High school biology lab Non-majors biology lab Molecular Biology Microbiology
-------------	--

### **Research Experience**

---

2005 - 2010	Assistant Professor, Loyola University Maryland, Department of Biology Current Research interests: The genetic regulation of sex-specific gonad development in the nematode, <i>C. elegans</i>
2001 - 2005	Research Associate, University of Wisconsin, Department of Biochemistry Advisor: Dr. Judith Kimble
1995 - 2001	Research Assistant, Duke University, Department of Cell Biology Advisor: Dr. Blanche Capel
1994 - 1995	Lab Assistant, Florida State University, Department of Molecular Biophysics

### **Society memberships**

---

2003 - 2005	Genetics Society of America
1997 - 2005	Society for Developmental Biology

### **Awards and Honors**

---

2003	Honorable mention, Poster Competition, 14 <sup>th</sup> International <i>C. elegans</i> meeting
1995	Graduated <i>Magna Cum Laude</i>
1995	Phi Beta Kappa
1992 - 1995	Golden Key Honor Society
1991 - 1995	Dean's Honor List
1991 - 1995	Florida Academic Scholar
1991 - 1995	Florida State University Tuition Award
1992	Florida State University Scholar Athlete

### **Grants and Fellowships**

---

2009	Loyola University Summer Research Grant
2007	Loyola University Summer Research Grant
2006	Loyola University Summer Research Grant
2003 - 2005	NRSA Postdoctoral Fellowship
2001 - 2003	Howard Hughes Medical Institute Postdoctoral Fellowship

1997 - 2001	Graduate Fellowship, NIH
1997 - 1999	Departmental Travel Fellowships, Duke University
1995 - 1997	Cell and Molecular Biology Program Graduate Fellowship, Duke University

## **Publications**

---

**Tilman, C.** and Kimble, J. (2005). Cyclin D regulation of a sexually dimorphic asymmetric cell division. *Developmental Cell*. 9, 489-499.

Chang, W., **Tilman, C.**, Thoenke, K., Markussen, F., Mathies, L., Kimble, J., and Zarkower, D (2004). A forkhead protein controls sexual identity of the *C. elegans* male somatic gonad. *Development* 131, 1425-1436.

**Tilman, C.**, Brennan, J, and Capel, B. (2003). PDGFR- $\alpha$  mediates testis cord organization and fetal Leydig cell development in the XY gonad. *Genes and Development* 17, 800-810.

Ross, A.J., **Tilman, C.**, Yao H., MacLaughlin, D., Capel B. (2003). AMH induces mesonephric cell migration in XX gonads. *Molecular and Cellular Endocrinology*. 211, 1-7.

Yao, H., **Tilman, C.**, Zhao, G., and Capel B. (2002) The battle of the sexes: opposing pathways in sex determination. *The genetics and biology of sex determination Novartis Foundation Symposium* 244, 187-198.

**Tilman, C.**, and Capel B. (2002) Cellular and molecular pathways of testis organogenesis. *Recent Progress in Hormone Research* 57, 1-18.

**Tilman, C.**, and Capel, B. (1999). Mesonephric cell migration induces testis cord formation and Sertoli cell differentiation in the mammalian gonad. *Development* 126, 2883-2890.

Brennan, J., Karl, J., Martineau, J., Nordqvist, K., Schmahl, J., **Tilman, C.**, Ung, K., and Capel, B. (1998). Sry and the testis: molecular pathways of organogenesis. *Journal of Experimental Zoology* 281, 494-500.

Martineau, J., Nordqvist, K., **Tilman C.**, Lovell-Badge, R., and Capel, B. (1997). Male-specific cell migration into the developing gonad. *Current Biology* 7, 958-968.

## **Presentations**

---

**Tilman, C** and Kimble, J. (2004). Genetic regulation of sexual dimorphism in the *C. elegans* gonad. *Cold Spring Harbor Laboratory Germ Cell Meeting*.

**Tilman, C**, Brennan, J., and Capel, B. (2001). The PDGFR $\alpha$  is required for the differentiation of Leydig cells in the mammalian testis. *Society for Developmental Biology Southeast Regional Meeting*.

**Tilman, C** and Capel, B. (1998). *Sry* induces cell migration which controls testis cord formation and Sertoli cell differentiation in the mammalian gonad. *First Annual North Carolina Center for Biotechnology Developmental Biology Meeting*.

## **Abstracts**

---

2005	First Annual <i>C. elegans</i> Topic Meeting
2004	Cold Spring Harbor Laboratory Germ Cell Meeting
2004	Society for Developmental Biology 63 <sup>rd</sup> Annual Meeting
2003	14 <sup>th</sup> International <i>C. elegans</i> meeting
2002	Midwest <i>C. elegans</i> Meeting
2001	Society for Developmental Biology 60 <sup>th</sup> Annual Meeting
1997-2000	Duke University Annual Graduate Student Symposium
1999	Society for Developmental Biology 58 <sup>th</sup> Annual Meeting
1998	Society for Developmental Biology Annual Southeast Regional Meeting
1998	Society for Developmental Biology 57 <sup>th</sup> Annual Meeting
1997	Society for Developmental Biology 13 <sup>th</sup> International Congress, 56 <sup>th</sup> Annual Meeting



## **Student research projects**

---

Identification of mutations effecting spermathecal development in *C. elegans*

2008	Allandria Edwards
2006-2007	William Ruff
2007	Gregory DiSilvio
2007	Katelyn Woods
2006	Larisa Broglie
2006	Elizabeth March-Steves

Investigation of the effects of endocrine disruptors on *C. elegans* development and reproduction

2009	Samantha Greenbaum
2009	Rachel Shillinger
2008 - 2009	Kristen Henkel
2008	Maureen Daly
2008	Thomas Darrow

## **Service activities**

---

2009	FE 100 (Freshman Experience)
2008-2010	Core Advisor to Freshman
2008	Undergraduate Research and Scholarship Committee
2006-2010	Biology Department Student Advisor
2005-2010	Departmental search committees for tenure-track and visiting professors

Jean Walsh Petersen  
6506 Oakwood Place  
Middleton, WI 53562-3012  
608-265-9285 (work)  
jmpeter2@wisc.edu

## EDUCATION

University of Wisconsin – Madison, 1983, 1989-90, 1992, special student, education credits

Graduate Studies: Cornell University, Ithaca, New York. Genetics major, Biochemistry and Microbiology minors. September 1976-July 1981 (PhD unfinished). Honors: teaching assistantship, summer fellowship, NIH Training Grant.

Bachelor of Arts, cum laude 1976. Queens College, City University of New York, Flushing, NY. Biology-Secondary Education. Honors: Kappa Delta Pi, Arthur and Laura Colwin Award (undergraduate research), Dean's List (1972-1976), New York State Regents Scholarship.

### Current Position:

Senior Student Services Coordinator  
Student Services Coordinator

July 1, 2005 - present  
August 17, 1999 to June 30, 2005

## Genetics Department

<i>Undergraduate Advisor</i>	ongoing
Primary advisor to Freshmen and Sophomores	
Point person for 300 undergraduates	
Career Development and Exploration	
Undergraduate Research placement	
<i>SOAR advisor</i>	Summers 2000-2012
Assess entering students' academic profile and advise on course selections	
<i>UGA</i> (undergraduate student organization)	Fall 1999 - present
organizer and staff advisor	
Wisconsin Science Olympiad – advisor for Genetics section	Spring 2004
<i>Graduate Students Coordinator</i>	
Organize Summer Colloquium with faculty advisor and student representative	Summers 2000-present
Teach TA workshop for Genetics graduate students	Summers 2000-present
Annual update of Graduate Student Handbook	
Graduate Students First Year committee-organized Fall 2001	Fall 2001-present
Coordinate monthly meetings	
Monitor students' progress and lab rotations	
Point person for information and advice	
Coordinate end of year celebration	
Graduate Students pre-First Year committee (with Dove)	Fall 1999, 2000

Coordinate monthly meetings	
Monitor students' progress and lab rotations	
Point person for information and advice	
Coordinate end of year celebration	
Organize annual Schlinggen Award	Summers 2000-present
<i>Graduate Students Admission Committee</i>	2000-present
Member of Admissions Committee	
Point person for prospective student inquiries	
Coordinate all aspects of prospective students' visits (Interviewing Fridays)	
Recruit and supervise Graduate Student Hosts	
Recruit and schedule faculty interviewers	
Coordinate and summarize prospective students' evaluations	
Prepare prospective students' biographies for distribution	
Coordinate Round-Robin orientation talks for entering graduate students	
Recruiter at McNair Conference (underserved student scholars)	Nov 2001, 2003, 2004, and 2005
<i>Genetics Curriculum Committee</i>	ongoing
Work with faculty chair and administrative assistant on agenda	
Prepare meeting minutes	
<i>Genetics Retreat</i>	2001-present
Coordinate the Genetics Retreat committee (2 faculty, 6 graduate students),	
Solicited financial sponsorship	
Plan and implement	
<i>Freshman Seminar Course</i>	Spring 2000-present
Co-facilitate	
<i>Genetics Website</i>	ongoing
Work with department IT specialist in website updates	
<i>Genetics Undergraduate Brochure</i>	2000 & 2006
Designed brochure and coordinated production with CALS	
<i>Sexual Harassment Co-Officer for Department, trained</i>	ongoing
<i>Summer Newsletter; designer</i>	Summers 2004 - present

## College of Agriculture and Life Sciences

<i>Committees</i>	
Advising Survey Committee (Ray)	Fall 2001
IT committee (Barrows)	Spring 2001
Diversity Committee (Hebert)	Fall 2001-present

Outstanding Students Committee (Ray)	March 2001- 2007
Steenbock Library Committee	2006 - present
Search Committee: Student Services Director (Daluge)	Fall 2000
Biological Sciences Career Fair: (Braxton)	Fall 1999
Plan and implement fair (forerunner to Life Sciences Career Fair)	
Recruited biotech companies to send recruiting representatives	
Life Sciences Career Fair	Fall 2001-2006
Plan and implement with L&S Career Services annual fair	
Employer Development (URP)	Winter 2005
Career Services: Resume and Networking Workshops	April 2001- 2006
CALS Leadership Certificate Steering Committee	2004-2005
CALS Leadership Certificate – Mentor	2005 – 2009
CALS Leadership Certificate – Committee	2005 - 2009

### *Courses*

Inter-Ag155	Fall 2000-2008
Discussion facilitator (Barrows' Freshman Seminar)	

### *Other*

CALS visit days: Freshmen recruitment; monthly	Fall 1999-ongoing
Campus Open House-Genetics booth	August 19, 2000
Gamma Sigma initiation ceremony	May 2000-2004
Alpha Gamma Rho -"CompetitiveEdge"	March 2000-2004
Presented overview of Biological Sciences Curriculum for CALS entering Freshmen and parents	
SOAR advisor	Summer 2000-2012
WI/MN State Science Teachers Convention- CALS recruiting booth (Duluth, MN)	March 2001
Science Expo presenter	April 2001, 2002
Study Skills Workshops – cofacilitator (with Pape)	Fall 2002 – 2003
On The Road – Peggy Notebaert Nature Museum, Chicago	April 10, 2003
CALS Majors Fair	Fall 2002-2006

## **Previous Related University Employment**

Lab Manager (Betsy McCormick, Genetics) October 1998 – August 1999

- oversaw lab operation
- hired and supervised undergraduate students
- mentored undergraduate students in independent research
- research: neurogenetics

Research Specialist/Lab Manager (Robert DeMars, Genetics) September 1983-October 1998

- oversaw lab operation
- hired and supervised undergraduate students
- mentored undergraduate and graduate students in independent research
- research: immunogenetics

## **Outside Personal Related Activities**

Volunteer - Four Lakes Council (now Glacier's Edge Council), Boy Scouts of America 1988 - present

National Youth Leadership Training Administrator 2005- 2010

- leadership training program to youth from around the council

Lodge Advisor (Order of the Arrow) October 2003 - 2010

- advise youth leadership of the local chapter (Lodge) of National BSA Society of honored Scouts

Executive Board member

Vice President of Membership February 2011-present

Council Commissioner February 1998 – February 2001

- Chief council volunteer in charge of program
- reported to Executive Board
- gave leadership to volunteer staff of 80 commissioners
- member of Council key leadership ("Key 3": council President , Council Scout Executive, Council Commissioner)

Other roles 1988 - present

Adult trainer, program coordinator for Cub Scout summer camp and other special events; Den Leader

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Introduction to Genomic and Proteomics*

**Transcript Title (limit 30 characters)**

*Intro to Genomic & Proteomics*

**Three-digit course number**

*564*

**Is this an honors course?**

*No*

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

*No*

**Will this course be crosslisted?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Spring*

## Catalog Information

**Minimum credits**

3

**Maximum credits**

3

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*The basic principles of genomics, proteomics and bioinformatics will be taught through readings of the scientific literature, class presentations, group projects and computer lab web-based experiences. Emphasis will be placed upon student participation in the learning process. Some topics covered will be: genomic sequencing, motif discovery, DNA microarray, high-throughput genetics, chemical genetics, mass spectrometry techniques and protein networks.*

**Does the course have prerequisites or other requirements?**

Yes

**List the prerequisites and other requirements for the course**

*Genetics 466 and consent of instructor. Biochemistry 501 and Microbiology 303 are recommended*

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

*Discussion*

*Laboratory*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Patrick Litza*

**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 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.)

*Adds diversity to the genetics majors advanced elective options. Adds to the diversity of capstone options available to genetics majors.*

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).

*Genetics capstone requirement Genetics advanced elective, Subset 1 (courses valid for Genetics major elective credit which are largely based on genetics analysis)*

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

*Fruitful discussions and interactions abound as the course covers a variety of genomic, proteomic and bioinformatic approaches to biological problems. The seminar session on Tuesday covers primary literature which is presented by two students and discussed by the class. Mandatory submission of a question from students not presenting occurs on the course blog, which promotes student involvement in the discussion. On Thursday, the class focuses on bioinformatic databases and approaches in biology used in the chosen primary literature that week. In the lab, the students learn how to access these bioinformatic databases and research a particular gene/protein associated with a human disease of their choosing. The goal is for the students to learn how to perform in silico research, form hypotheses and then propose ways of testing them. At the end of the semester the students must defend their work in a short presentation, paying particular attention to future lab work they would perform to test their hypothesis.*

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

*The course is similar in topic to Hort 580 (Patrick Krysan) but does not cover plant genomic and proteomic techniques. This genetics course is also entirely taught using project-based active learning techniques unlike the course in Horticulture. Course duplication was discussed with Dr Krysan and no overlap in teaching approach was found. Dr. Krysan's course is entirely plant-based, which is not covered in this course. Dr Krysan has been consulted and is supportive of the course and agrees with my course description and acknowledges this course is distinct from Hort 580.*

### 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)

*Ahna Skop, Associate Professor*

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.

*Gen564 Syllabus.pdf*

## Justifications

### Explain how this course contributes to strengthening your curriculum

*This course will help broaden the choice available for higher level genetics classes. It will also serve as a capstone option for the genetics major. Goals of Genetics 677-Introduction to Genomics and Proteomics: Foster development of problem solving skills. Study the role of a gene in human disease of their own choosing. Students learn multidisciplinary approaches to address scientific questions. -Students obtain bioinformatic data, ask questions, develop a deeper knowledge of the disease and molecular mechanisms, solve real-world challenges and share this experience with the class and world. -Students learn to effectively communicate, orally, visually and in writing. -Students develop skills to access online bioinformatic data. -Students learn to design useful and easy to navigate websites. -Students learn the power of peer review. -Students published work online by the end of the semester. -Students work in a positive learning environment.*

### Provide an estimate of the expected enrollment

18

### 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 Tuesday for 50 minutes. On Thursday the course meets from 3:30-5pm. Course load and semester long project warrants 3 credits.*

### If this is a variable credit course, provide rationale

### 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?

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?

**GENETICS 564: Genomic & Proteomic Analysis  
Spring 2013****Instructor:** Dr. Ahna Skop**3 Credits****Tues: 3:30-4:20, Genetics Rm 1408****Thurs: 3:30pm-5:00pm, Biochemistry Bld (420 Henry Mall) B1144 (DMC Computer Cluster)****Papers:** All papers will be posted on the course web site as PDFs: <http://gen677.weebly.com/readings.html>

**Capstone Class Structure:** The aims of the course are: 1) to learn to read and evaluate papers from the primary literature in the area of genomics and proteomics, 2) to understand modern experimental methods used to ask fundamental biological questions, 3) to develop problem solving skills using electronic resources, and bioinformatic databases, 4) to practice synthesizing, presenting and critiquing original research in the selected areas of genomics and proteomics in teams of two, 5) to communicate work to the public by publishing own research in a website format, 6) to address ethical, scientific and societal issues relating to their semester long project by writing a popular press article related to semester long project on a human disease gene, 7) to learn to effectively communicate work to peers/public by improving speaking styles and presentation skills, and 8) to learn about the scientific peer review process by experiencing several class peer reviews of student presentations, writing samples and their web-based project.

Each lecture class (usually Tuesdays) will be conducted as a “journal club” (\*except where noted on the syllabus). One or two students will present 1-2 papers on a particular topic. Each presentation should last approximately one hour and give background information needed to understand each paper (a review paper will be supplied), present the results figure-by-figure, and include a discussion and evaluation of the results. Everyone is expected to read the reviews and original papers assigned so that they can participate in the discussion. One question should be submitted to our online blog (<http://gen677.weebly.com/blog.html>) no later than 12:00pm each presentation day from each student (except the speaker(s)) in the class about the paper or topic. This question should be asked in class. Participation points are determined based on YOU asking your question(s) in class on a weekly basis. Most students who get an ‘A’ in the course are active participants in the class.

Each lab class (usually Thursdays) will be conducted in the Digital Media Center (DMC) Computer Cluster (**B1144 Biochemistry**). For most of the semester you will be working on one aspect of your semester long project each week during lab class time. I encourage you to work in a group both in class and outside of class. It will be beneficial to your research.

**Grading:** 30% from presentations, 40% from projects and 20% from class participation, 10% questions. Everyone has the potential to get an “A” in this course. It is impossible to fail unless you don’t do any work or participate. Everyone starts with an “A” at the beginning and then you can lose points over the course of the semester. There will be no curve. 94-100% is an A, 90-93% is an AB, 85-89% is a B, 81-84% is a BC, 75-80% is a C, 65-74% is a D, 55-64% is an F.

**Computer:** I will have my MAC computer available so that you may load your Powerpoint or Keynote talks on my computer. If you want to use your own computer, make sure that everyone in your group’s visual aids are loaded on one computer to make things go more smoothly in class. I will be there early to help you set up your presentation. *Please email me if you need my computer a day before class so I can bring my computer in.*

**Meeting with Ahna:** Each student/group has the option to meet with Ahna prior to their presentation to go over their presentation and clear up any questions if you want but you don’t have to. You should have read all papers and have an outline of your presentation prepared before this meeting. I will send an email with your

performance, grade and suggestions for improving your talk soon afterwards. In addition, if you prefer getting more feedback in person let me know, I'd be happy to meet with you anytime. Please email me to set up an appointment to meet.

**Teaching a "GREEN" course:**

I am trying to make this course as "GREEN" as I can. Very little paper will be wasted on projects and coursework throughout the semester. Of course, the computers use electricity to work, but I am trying to keep the paper waste to a minimum. Projects and weekly questions will be submitted in an online format to be graded, reducing impact on our environment. Shut off your computers if when you are done! Please recycle paper when are done with it!

**Being Creative:**

You were born with a tremendous amount of creative possibilities! I encourage you to be as creative and innovative as you can be in this course, both with your project and in your class presentations. Don't be afraid to take risks! Each one of you is unique and this alone brings a lot to class, your project and science.

**Guidelines:**

**1. Presentations (30% of grade):** Presenting a paper involves three aspects. **First**, you should give some background that will help the other students understand the paper and put the paper in the context of other research in this area. You should focus on introducing background that relates to the paper. If you are presenting an overview of a topic you should give the basic overview of the technique, how it is used and some examples of how it can be used to tackle questions someone might have about their genes, proteins or genomes, etc. In some cases, it is helpful to review previous results by the same authors that lead to the paper you are presenting. **Second**, you should go through the paper figure by figure (you do not have to all of them but as you see fit). Your role here is to point out what the purpose for each experiment is and to assist the class in evaluating the data. To properly evaluate the data you must understand how the experiment was done and look up any techniques you are unfamiliar with. **Third**, you should facilitate a discussion with your fellow students. Ideally, other students will interject their opinions of the experiments as you present each one. You can encourage participation by pausing to ask specific questions ("I thought that a control was needed in this experiment, does anyone agree, and if so what control is needed?"). You should also summarize the author's conclusions and encourage a discussion of these conclusions and future lines of inquiry suggested by these studies.

**Grading of Presentations:**

30% - quality of background given – does it set up the paper well and include discussion of any background data or techniques needed to understand the paper?

35% - presentation of the figures

15% - role as discussion leader

20% - summary and discussion of conclusions/future directions

**Peer reviews:** Peer feedback is important in science. Your fellow classmates will evaluate your presentations throughout the semester. An evaluation form will be sent out electronically. I will collect the evaluations and read them over and send them to you digitally as soon as possible.

**2. Semester long projects (40%):** Web-based resources are heavily used in genomics and proteomics analysis. Therefore it is good to learn how to create web pages. Websites will be created using <http://www.weebly.com>. We will go over in class how to set up your pages for your semester long projects. Your web assignments will be submitted online only. Please send me your link to your page when you set it up initially. These will be posted on the course website. See deadlines for particular sections on the project schedule.

**Grading of Websites & Projects**

30% - quality of background given & reviews of popular press and scientific articles

30% - quality & presentation of the results, methods & references (i.e. your data) on your project website

- 20% - quality & presentation of findings (to class at end of semester)
- 15% - summary and discussion of conclusions/future directions
- 5% - originality & aesthetics of overall project & website

**3. Class Participation (20% of grade):** Learning to participate in a meaningful discussion of scientific data is a major goal of this course. You can only participate if you have read all assigned papers and come to class prepared. During the presentation, it is OK to interrupt to ask a question or make a comment. You should not save all your questions/comments until the end. Active participation by everyone makes for a lively and interesting discussion. Your opinion is important, and you are encouraged to express it. **NOTE:** You are exempt from 2 classes throughout the semester, any more you lose a letter grade. If you are sick or have a family emergency, please email ahead of time that you will not be able to make it to class that day.

**4. Questions (10% of grade):** For each class presentation, everyone will be expected to post 1 question prior to class (about the paper, technique or topic) on our class blog (<http://gen677.weebly.com/blog.html>). This should be one or more questions about what you are unclear about from reading that you want to ask in class. If you are giving the paper, you do not need to submit a question. **NOTE:** You are exempt from submitting 2 questions during the semester. Any more than that you lose a letter grade. Each question will be worth 10pts. The question should be submitted no later than 12:00pm the day of the presentation. **\*NOTE:** The speaker(s) should read the questions on the blog after 12 noon and be ready to answer them in class. I will surely help you out if you don't know.

#### **Academic Misconduct:**

Throughout the course of the semester you will be obtaining the majority of your research from web-based sites and material. I know how easy it might seem to take what is on a website. But think twice, I am quite computer savvy and I will catch you.

UW-Madison's Guidelines for Academic Misconduct:

<http://www.wisc.edu/students/saja/misconduct/UWSI4.html>

How to avoid plagiarizing (UW-Madison Writing Center):

[http://www.wisc.edu/writing/Handbook/QPA\\_plagiarism.html](http://www.wisc.edu/writing/Handbook/QPA_plagiarism.html)

#### **Definition of Academic Misconduct**

(taken from <http://www.wisc.edu/students/saja/misconduct/UWSI4.html>)

Academic honesty requires that the course work (drafts, reports, examinations, papers) a student presents to an instructor honestly and accurately indicates the student's own academic efforts.

UWS I4 is the chapter of the University of Wisconsin System Administrative code that regulates academic misconduct. UW-Madison implements the rules defined in UWS I4 through our own "Student Academic Misconduct Campus Procedures." UWS I4.03 defines academic misconduct as follows:

*Academic misconduct is an act in which a student:*

- \* seeks to claim credit for the work or efforts of another without authorization or citation;
- \* uses unauthorized materials or fabricated data in any academic exercise;
- \* forges or falsifies academic documents or records;
- \* intentionally impedes or damages the academic work of others;
- \* engages in conduct aimed at making false representation of a student's academic performance;
- \* assists other students in any of these acts.

Examples include but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using notes or a programmable calculator in an exam when such use is not allowed; using another person's ideas, words, or research and

presenting it as one's own by not properly crediting the originator; stealing examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet; hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with a lab experiment or computer program of another student.

**Plagiarism** (taken from <http://students.wisc.edu/doso/acadintegrity.html>)

Plagiarism means presenting the words or ideas of others without giving credit. You should know the principles of plagiarism and the correct rules for citing sources. In general, if your paper implies that you are the originator of words or ideas, they must in fact be your own.

If you use someone else's exact words, they should be enclosed in quotation marks with the exact source listed. You may put someone else's idea in your own words as long as you indicate whose idea it was (for example, "As Jane Smith points out, . . ."). If you are unsure about the proper ways to give credit to sources, ask your instructor or consult the Writing Center at 6171 Helen C. White Hall (phone: 608/263-1992, e-mail: [writing@wisc.edu](mailto:writing@wisc.edu)) for a copy of their handout "Acknowledging, Paraphrasing, and Quoting Sources," which you can download [here](#).

**Citation Components and Examples**

(adapted from: <http://www.library.ualberta.ca/guides/citation/index.cfm>)

As more information becomes available on the Internet and in electronic form, some standardization of citation formats is necessary in order to provide accurate references to authorship and to facilitate access to the sources. The style authorities have various approaches to the citation of electronic sources and, in general, there is little agreement among them. However, there are two principles emerging to which all authorities appear to adhere: 1) provide as much information as possible concerning the authorship and the availability of the sources, and 2) if there is no specific guideline for a particular electronic source, draw an analogy to a relevant print source guideline.

**Citation of Electronic Resources based on APA Style**

Please note that on June 2007, APA published a new style guide for electronic references, which replaced section 4.16 of the fifth edition of the APA manual (2001, pp.268-281). You may also consult the APA's website at <http://www.apastyle.org/manual/related/sample-experiment-paper-1.pdf>

Important changes include:

- \* **Issue number:** Always include journal issue number if available, regardless of whether the journal is paginated separately by issue or continuously by volume.
- \* **Retrieval date:** Include retrieval date if the cited content is likely to be changed or updated. No retrieval date is necessary if the materials are the final version, such as a journal article or book.
- \* **Use DOI (if available) instead of URL.** Digital Object Identifier (DOI) is a unique identifier used to provide a persistent link to the location of the content on the Internet. The DOI resolver is provided by CrossRef.org, a registration agency for scholarly and professional publications.
- \* Database name is no longer necessary unless the content is of limited circulation delivered by electronic databases (do not include the database URL)

**Citation Examples:****A Journal Article with DOI**

Marsh, H. W., Trautwein, U., Lüdtke, O., Baumert, J., & Köller, O. (2007).

The big-fish-little-pond effect: Persistent negative effects of selective high schools on self-concept after graduation. *American Educational Research Journal*, 44(3), 631. doi: 10.3102/0002831207306728

**A Journal Article with no DOI**

Schrader, A. (1999). Internet Censorship: Issues for teacher-librarian. *Teacher Librarian*, 26(5). Retrieved from:

<http://proquest.umi.com/pqdlink?did=42031752&sid=1&Fmt=2&clientId=12301&RQT=309&VName=PQD>

**A Magazine Article**

Alexandra Penn (2006, November). Raising the Alert on Cyber Bullying.

Teach, 17-18. Retrieved from:

<http://proquest.umi.com/pqdlink?did=1226114671&sid=5&Fmt=2&clientId=12301&RQT=309&VName=PQD>

**An Internet Journal Article with No Print Equivalent**

Foster, S. K., Paulk, A., & Dastoor, B. R. (1999). Can we really teach test-taking skills? *New Horizons in Adult Education*, 13(1). Retrieved February 7, 2000, from <http://www.nova.edu/~aed/newhorizons.html>

**A Newspaper Article**

Avery, B. (2000, February 9). Oil Prices likely to remain high: Non-OPEC suppliers unable to challenge cartel. *The Edmonton Journal*. Retrieved from

<http://www.edmontonjournal.com/>

**Online encyclopedia** (or Wikipedia---\*Note it's not a good idea to take stuff from here)

Adamski, B. K. (n.d.). Lacrosse. In Canadian Encyclopedia Online. Retrieved

September 15, 2006, from

<http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1SEC888940>

### **A Web Document**

American Psychological Association. (2001). Electronic references. Retrieved

November 1, 2001, from <http://www.apastyle.org/electref.html>

### **A Web Site**

No reference entry is needed; link to the URL of the site on your page. For example,

2Learn is a very useful Web site for teachers <http://www.2Learn.ca/mapset/mapset.html> or highlight text and insert hyperlink.

### **Illustrations\*\*\***

*To provide full citation of illustrations, include a note at the bottom of the reprinted work (or in the caption) giving credit to the original author and to the copyright holder. Although APA does not include specific guidelines regarding images from websites, here is a suggestion drawn from an analogy to printed work. For example, to provide full bibliographic citation to a copyrighted photograph obtained from the Washington State University website, include a note at the bottom of the photograph:*

**Example:** *From Washington State University, Pullman, University Recreation. (2004). Men's Ice Hockey [Photograph]. Retrieved from <http://urec.wsu.edu/photos/> Copyright 2002 by Board of Regents, Washington State University.*



**Genetics 564 Honor Code**

In order to participate in Genetics 564 you must agree to the following standards by signing your name below:

I will research and report data taken from web-based databases and resources honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.

All work that I will submit under my name will be my own. I will not copy or paraphrase from any website or student in the course (including previous students or other students in other courses online). I will list the names of students with whom I worked with (if applicable for certain parts of your project).

I will not allow another student to submit assignments for me.

I will strive to produce a first author web-based project that is honest and true to my own semester research.

I will be proud to publish my work on our course website as my own.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

*Please sign and give back to me at the end of class.*

## Genetics 564

SPRING 2013

Date	Location	Notes	Topics Covered
January 22nd, 2013	1408		Course & Semester Long Project Overview
January 24th, 2013	DMC LAB:B1144	<i>Note: Old Biochem is on Henry Mall</i>	LAB: Project overview & Website Creation
January 29th, 2013	1408	<b>Guest speaker: Adam Steinberg</b>	"How to give a good presentation"
January 31st, 2013	DMC LAB:B1144		LAB: Website creation, cont'd., FASTA & BLAST/Entrez
February 5th, 2013	1408		Human Genomics: Next generation Sequencing
February 7th, 2013	DMC LAB:B1144	<b>WebPage 1 due: Homepage w/Intro</b>	LAB: Homologene
February 12th, 2013	1408		Phylogenomics
February 14th, 2013	DMC LAB:B1144		LAB: ClustalW, Phylogeny.fr, TreeFAM, etc.
February 19th, 2013	1408		Gene Ontology, Motifs & Protein Domains
February 21st, 2013	DMC LAB:B1144	<b>WebPages 2 due: Genomics to Phylogeny</b>	LAB: GO, MOTIF, PFAM, SMART
February 26th, 2013	1408		High throughput Genomics
February 28th, 2013	DMC LAB:B1144		LAB: RNAi databases
March 5th, 2013	1408	<b>PEER Feedback Due</b>	Chemical Genetics
March 7th, 2013	DMC LAB:B1144		LAB: Chemical Genetics
March 12th, 2013	1408		DNA MicroArrays
March 14th, 2013	DMC LAB:B1144	<b>WebPages 3 due: Popular Science Article about your Primary Paper</b>	LAB: MicroArrays
March 19th, 2013	1408		2D gel analysis
March 21st, 2013	DMC LAB:B1144		LAB: UNIPROT, PROSITE & work on projects
March 26th, 2013	1408	<b>SPRING BREAK</b>	
March 28th, 2013	DMC LAB:B1144	<b>SPRING BREAK</b>	
April 2nd, 2013	1408		Mass Spectrometry & Proteomic Approaches
April 4th, 2013	DMC LAB:B1144	<b>LAB tours: Genomics &amp; Proteomics Facilities</b>	LAB Tour: meet in Computer LAB, Discuss StoryBoard & work on projects
April 9th, 2013	1408	<b>StoryBoards Due</b>	Biological Networks I
April 11th, 2013	DMC LAB:B1144		LAB: Creating Interaction Networks: STRING
April 16th, 2013	1408		Biological Networks II
April 18th, 2013	DMC LAB:B1144		LAB: Creating Interaction Networks & Work on projects
April 23rd, 2013	1408		Final Presentations Overview
April 25th, 2013	DMC LAB:B1144	<b>WebPages 4 due: Genomics to Biological Networks</b>	<b>Final Presentations-3 talks</b>
April 30th, 2013	1408	<b>PEER Feedback Due</b>	<b>Final Presentations: 3 talks</b>
May 2nd, 2013	DMC LAB:B1144		<b>Final Presentations: 4 talks</b>
May 7th, 2013	1408		<b>Final Presentations : 4 talks</b>
May 9th, 2013	DMC LAB:B1144		<b>Final Presentations : 4 talks</b>
May 19th, 2013	EXAM	<b>Final Project Due</b>	<b>Final web project due</b>

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Capstone Research Seminar*

**Transcript Title (limit 30 characters)**

*Capstone Research Seminar*

**Three-digit course number**

*567*

**Is this an honors course?**

*No*

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

*No*

**Will this course be crosslisted?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Fall*

## Catalog Information

**Minimum credits**

1

**Maximum credits**

1

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*Student-led discussions on scientific, societal, and professional topics relevant to Senior research and selected original research presentations. This course is a companion seminar for independent research and together will fulfill the Genetics major capstone requirement.*

**Does the course have prerequisites or other requirements?**

Yes

**List the prerequisites and other requirements for the course**

*Gen 466 or instructor consent. Must be taken concurrently with independent research Gen 699 or Gen 681/682 series.*

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

*Discussion*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Patrick Litza*

**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.)

*Adds to the diversity of capstone options available to Genetics majors. Is designed as a companion course to research-based independent study courses (Gen 699 or Gen 681) to add components characteristics of the capstone requirement, as well as to provide a higher quality and more uniform capstone research experience within our major.*

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).

*Meets the genetics major's capstone requirement when combined with 2 or more credits of independent study (Gen 699 or Gen 681).*

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

No

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

## Course Content

### Describe the course content

*This is a 1-credit discussion/seminar-based companion course to 2 or more credits of senior research within our major (Gen 699 or Gen 681). The course is run in small groups (8 students) led by Graduate Students, Postdocs or Faculty members, with overall coordination and supervision by Faculty instructors. Students in the course will be exposed to a variety of activities to strengthen their exposure to the characteristics of a capstone experience as proposed by the college, including: i) journal-club presentation of primary research literature, ii) ongoing discussion and end-of-semester presentation of their research project, iii) design, implementation and evaluation of a presentation or activity involving a different audience (e.g. K-12, introductory college-level, laboratory group, research community), iv) discussions of research in education, Genetics in society and career opportunities.*

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

*This is a companion course to senior research courses in the Genetics major (Gen 699 or Gen 681) in order to broaden the scope of those courses to make them appropriate as fulfilling the characteristics of a college capstone requirement. The course will also provide support for students during their senior research experience, increase the quality of our senior research program and allow additional contact of students to mentors who are involved first-hand in research.*

### 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)

*Chris Day (Faculty Associate) Francisco Pelegri (Professor)*

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.

*Christopher Day is a Faculty Associate and Undergraduate Advisor with both research and undergraduate mentoring experience (see CV).*

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

*Gen 567 Syllabus 2012.pdf*

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course complements a Senior research course, which needs to be taken concurrently, to provide a unified format to address capstone characteristics as determined by the college. The course will also increase exposure of students to various types of research in the department, and direct contact with faculty, Post Doctoral fellows or Graduate Students.*

**Provide an estimate of the expected enrollment**

*16, divided in groups of two sections of 8 students each*

**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 seminar course will meet during one instruction-hour per week. Preparation for the discussion, presentation and other activities is expected to average an additional 2 hours per week.*

**If this is a variable credit course, provide rationale**

**Additional comments (optional)**

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

*Day 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?**

**Gen 567 Syllabus - 2012****Capstone Research Seminar (1 cr.)**

This course accompanies Senior Research courses (Gen 699, Gen 681/682 series) when taken to fulfill the Genetics major capstone requirement.

Mentored, student-led discussions on scientific, societal, and professional topics relevant to Senior research and selected original research presentations. This course is run as small discussion groups (8 students) mentored by Graduate Students, Postdoctoral Fellows and Faculty. Faculty coordinators: C. Day, F. Pelegri. This course is offered every Fall, starting in 2012.

**Proposed course structure:**

Students will meet 1-hour a week with their group and mentor. The course will address the following issues:

- Progress in student's individual research projects
- Gradual development of student presentations on their project, including broader scientific picture and societal implications
- Presentations related to their research:
  - Journal club on a subject relevant to the student's research. This presentation will help students better understand both the scientific background and larger picture relevant to their own work. It will also help student gain experience in oral presentations.
  - Design and implementation of a presentation of the student's research or a related subject to a different audience (K-12 class, freshmen or other introductory-level seminar, host laboratory or campus community research group). The design and outcome of this experience will be discussed in class.
- Students will present their laboratory research to their peers in an oral presentation

**Student evaluation**

Student's performance will be assessed with the following scoring system: Participation (25 pts), Journal Club Presentation (25 pts), Research Seminar (25 pts), Multiple audience assignment (25 pts), for a total of 100 points. Letter grade assignment will be as follows: A >90; AB 85-90; B 75-84; BC 70-74; C 60-69; D 50-59, F <50.

**Reading assignments**

There is no textbook for this course. Reading assignments will be chosen by students and mentors from current published primary literature for the following topics: i) Research in education, ii) Journal club, iii) Genetics and society.



**Activities schedule by week:**

Week 1 – Sept 10	Introduction to the course How to present a paper: Sample Journal Club presentation by mentor How to choose a journal club article
Week 2 – Sept 17	Group discussion of scientific endeavor in education and society Discussion of primary literature articles on research in education
Week 3 – Sept 24	Design of interaction with multiple audiences (K-12 exploration, introductory-level seminar, host laboratory, other community research)
Week 4 – Oct 1	Journal club presentation by students
Week 5 - Oct 8	Journal club presentation by students
Week 6 – Oct 15	Journal club presentation by students
Week 7 – Oct 22	Journal club presentation by students
Week 8 – Oct 29	How to present a seminar: Sample Research Presentation by mentor Discussion about the outcome of the student interaction with multiple audiences (K-12 exploration, seminar to Genetics major sophomores, etc)
Week 9 – Nov 5	Genetics and society. Discussion of topic of interest chosen by group
Week 10 – Nov 12	Discussion on careers in Genetics with invited panel
Week 11 – Nov 19	Student oral presentations on research experience
Week 12 – Nov 26	Student oral presentations on research experience
Week 13 – Dec 3	Student oral presentations on research experience
Week 14 – Dec 10	Student oral presentations on research experience

## *Curriculum Vitae*

Christopher David Day

<b>Address</b>	Laboratory of Genetics University of Wisconsin-Madison 425-G Henry Mall, Rm 2422 Madison, WI 53706	<b>DOB</b>	March 21st, 1965
<b>E-mail</b>	cday2@wisc.edu	<b>Tel.</b>	608-265-2965

### **Employment and Education**

08/07-present	University of Wisconsin at Madison. Faculty Associate. Department of Genetics
08/02-08/07	University of Wisconsin at Madison. Assistant Prof. Department of Botany,
08/96 - 08/02	Plant Gene Expression Center, Berkeley Postdoctoral Associate in Dr. David Ow's laboratory
11/92 - 07/96	Yale University Postdoctoral Associate in Dr. Vivian Irish's laboratory
10/87 - 10/92	Edinburgh University Graduate student in Professor Christopher Leaver's laboratory. Ph.D. thesis: The mitochondrial adenine nucleotide translocator from <i>Zea mays</i> , gene structure and expression.
10/83 - 06/87	Edinburgh University Undergraduate degree in Biological Sciences, B.Sc. 2.1 Hons.

### **Brief Summary of Research Experience**

At Madison my laboratory research focused on plant development, specifically studying genes and mutants that involved in controlling cell endoreduplication and the role of this process in organ size. My research training is in the areas of plant molecular biology and biochemistry (Ph.D. with Prof. C.J. Leaver), as well as plant development and genetics (postdoc with Dr. V.F. Irish). My research in Dr. Irish's lab was on investigating the cellular and genetic interactions that occur during floral development. At the USDA, I worked in Dr. D.W. Ow's laboratory and developed site specific recombinase systems to use as a tool for genome analysis and crop improvement.

## Teaching Experience

### Current teaching

#### **Inter Ag 155; Fall 2009-present**

Freshman seminar for CALS students (1 credit). I facilitate one of the small break out groups for ten students.

#### **Genetics 375; Spring 2008-present**

Freshman Seminar for genetics students (1 credit). I give some presentations in the course and help to invite outside speakers, for about 60 students.

#### **Genetics 160; Fall 2007-present**

Designed to be attractive for non-majors interested in science (3 credits). I teach 43 lectures and administrate the course, for about 120 students

#### **Genetics 466; Summer 2009-present**

Advanced genetics core course (3 credits). I TA'ed the course in 2009 and taught 1/4 of the lectures in 2010; for about 80 students.

#### **Capstone Genetics 566; Spring 2009-present**

For seniors majoring in genetics (3 credits). I will be co-course chair from 2011, for about 70 students.

#### **Biology 260/261; Fall/Spring 2008-present**

For sophomore students who are entering research laboratories (1 credit). A course developed by the Center for Biology Education. I facilitate one of the weekly sections for 10 students.

#### **Genetics 840; Fall 2004, 2006, 2010**

For graduate students (3 credits) I teach 8 lectures, for about 15 students.

### Previous teaching experience

#### **Introductory Biology, 2003-2007**

I taught in Biocore 303 (spring) and Biocore 323 (fall), two of the four courses taken by honors students at Madison. There are about 140 students and the teaching philosophy promotes interactive learning. Teaching and exams are concerned with making students think as opposed to regurgitating the information. In 2005, I initiated more active teaching during the lectures using wireless class room performance (CPS) feed back devices.

#### **Graduate level**

Between 2003 and 2007 I taught a 960 seminar course (1 credit) for graduate students.

### Advising

#### **Undergraduate**

I have been advising undergraduate students in the Biology Major since 2003 and the Genetics Major since 2007. I am currently advising 75 students.

## Service

Genetics Curriculum Committee, 2008-present  
CALS International Committee 2008-present  
Biology Major Executive Committee 2012-present  
Botany Curriculum Committee, Fall 2004, Spring 2005, Fall 2006  
Faculty Liaison (2003-2007)- Botany Club and Minorities  
Partners in Giving (SECC) coordinator, 2003-2007  
Social Committee (Botany) 2003-2007  
TA assignment Committee (Botany), Fall 2005

## Summer Institute for NRC

I was invited to participate in the National Research Councils Undergraduate Biology Education Pilot Summer Institute 2003. This was a fact finding experimental workshop before the first workshop in 2004. The goal of the Summer Institute is to promote the use of active teaching/learning techniques in the undergraduate lecture theatre.

## Scientific Publications

Larson-Rabin, Z., Li Z., Masson, P.H. and Day, C.D. (2009) FZR2/CCS52A1 Expression Is a Determinant of Endoreduplication and Cell Expansion in Arabidopsis. *Plant Physiology* 149 (2) 874-884.

Irish, V.F. and Day, C.D. (2005) A weed for all reasons. *Genome Biology* 6, 350

Baum, D.A. and Day, C.D. (2004) Cryptic bracts exposed: insights into the regulation of leaf expansion. *Dev Cell*. 6, 318-9.

Day, C.D., Lee, E., Kobayashi, J., Holappa, L., Albert, H., and Ow, D. (2000). Transgene integration into the same chromosome location can produce alleles that express at a predictable level, or alleles that are differentially silenced. *Genes and Development* 14, 2869-2880.

Hill, T.A., Day, C.D., Zondlo, S.C., Thackeray, A.G. and Irish, V.F. (1998). Discrete spatial and temporal cis-acting elements regulate transcription of the Arabidopsis floral homeotic gene APETALA3. *Development* 125, 1711-1721.

Day, C.D. and Irish, V.F. (1996). Genetic ablation as a tool for studying plant development. *Trends in Plant Science* 2, 106-111.

Irish, V.F., Day, C.D., Carr, S., Hill, T., Jenik, P. and Wright, E. (1996). Petal and stamen development during floral development. *Flowering Newsletter* 21, 21-26.

Day, C.D., Galgoci, B.F.C. and Irish, V.F. (1995). Genetic ablation of petal and stamen primordia to elucidate cell interactions during floral development. *Development* 121, 2887-2895.

Winning, B.M., Sarah, C.J., Purdue, P.E., Day, C.D. and Leaver, C.J. (1992). The adenine nucleotide translocator of higher plants is synthesized as a large precursor that is processed upon import into mitochondria. *Plant Journal* 2, 763-773.

Winning, B.M., Day, C.D., Sarah, C.J. and Leaver, C.J. (1991). Nucleotide sequence of two cDNAs encoding the adenine nucleotide translocator from *Zea mays*. *Plant Molecular Biology* 17, 305-307.

### **Invited Presentations at Universities and Companies**

Lawrence University, WI 2005  
University of Florida 2001  
University of Oregon 2001  
University of Wisconsin at Madison 2001  
Cornell University 2001  
New York State Agricultural Experiment Station 2001  
Pennsylvania State University 2001  
University of Tennessee 2001  
Oxford University, UK, 2000  
Cold Spring Harbor Laboratories 1999  
DNA Plant Technology Corporation, CA, 1998.  
Edinburgh University, UK, 1995.  
Glasgow University, UK, 1995.  
New York University, 1994.

### **Conferences (Oral Presentations)**

Day, C.D. (2008) Workshop on New Communication Channels for Biology, San Diego, CA

Chaired the Evolution and Development session at the American Genetics Association meeting. (2005)

Day, C.D., Holappa, L., Albert, H., Kobayashi, J., Lee, E. and Ow, D. (1998). Transgenes that are integrated into the same genomic *lox* site show variable expression. FASEB- Mechanisms in Plant Development, Vermont.

Day, C.D., Holappa, L., Albert, H., Kobayashi, J., Lee, E. and Ow, D. (1997). Epigenetic control of transgenes targeted to a specific genomic site. Society of In Vitro Biology Meeting, Washington D.C.

Day, C.D., Miller, R. and Irish, V.F. (1994). Genetic cell ablation to analyze cell interactions during *Arabidopsis* floral development. New York Regional Plant Conference.

Day, C.D., Miller, R. and Irish, V.F. (1994). Genetic cell ablation to analyze cell interactions during *Arabidopsis* floral development. International Society for Plant Molecular Biology meeting, Amsterdam.

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Animal Developmental Genetics*

**Transcript Title (limit 30 characters)**

*Animal Developmental Genetics*

**Three-digit course number**

*627*

**Is this an honors course?**

*No*

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

*No*

**Will this course be crosslisted?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Every Other Spring*

## Catalog Information

**Minimum credits**

3

**Maximum credits**

3

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*Advanced Genetics course focusing on genetic mechanisms of animal embryonic development, with particular emphasis on central molecular circuitries that control development and genetic analytical tools used to reveal them. Using a combination of lectures and primary research literature reading/student-led seminars, we will address topics including maternal and epigenetic inheritance, the egg-to-embryo transition, pattern formation, organogenesis, coordination of cellular and molecular mechanisms, and animal models of human congenital disorders.*

**Does the course have prerequisites or other requirements?**

Yes

**List the prerequisites and other requirements for the course**

*Genetics 466 or Consent of Instructor. Zoology 470 is recommended*

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

*Lecture*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Patrick Litza*

**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.)

*Adds diversity to the genetics majors advanced elective options focusing on a subject of biomedical relevance, namely animal developmental principles, developmental syndromes and development as applied to regenerative medicine. The course fulfills credits for the Genetics Undergraduate Major subset 1 (courses valid for Genetics Major elective credits which are largely based on genetic analysis). The course (currently listed as Genetics 677) is among a list of courses that fulfill the elective course requirements for the Undergraduate Certificate of Excellence in Stem Cell Sciences.*

Are any of these programs outside your academic unit?

Yes

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.

*Cell and Regenerative Biology (217)*

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).

*Genetics advanced elective, Subset 1 (courses valid for Genetics Major elective credits which are largely based on genetic analysis). Elective course requirements for the Undergraduate Certificate of Excellence in Stem Cell Sciences*

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

Yes

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.

*Cell and Regenerative Biology (217)*



## Course Content

### Describe the course content

*This course focuses on basic genetic mechanisms of animal embryonic development, with particular emphasis on central molecular circuitries that control development and genetic analytical tools used to reveal them. The course uses a combination of lectures (1.5 hours, Tuesdays) and student-led seminars based on primary research literature (1.5 hours, Thursdays). The lecture provides basic background for a particular topic or set of topics, and the student-led seminars expand on those topics using primary research literature. Topics in the course include genetic model systems to study developmental biology, maternal and epigenetic inheritance, the egg-to-embryo transition, pattern formation, organogenesis, coordination of cellular and molecular mechanisms, and animal models of human congenital disorders. Analysis of primary literature provides exposure to students to current research in this particular format and the student-led seminar provides experience conveying such information to an audience. Guidelines for seminar presentation are introduced early in the course.*

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

*This course develops concepts introduced in Zoology 470 (Introduction to Animal Development) but at a higher level and with a greater emphasis on genetic analysis and mechanisms. Zoo 470 is a recommended prerequisite but is not required as the course focus is more on genetic mechanisms rather than descriptive aspects of developmental biology. Jeff Hardin, instructor of Zoo 470, was consulted prior to the development of this course and he agreed that the course would complement and would be a welcome expansion to the content of Zoo 470. This course includes the discussion of various signaling pathways used during development, so that there may be overlap with Biochem 630 (Cellular Signal Transduction Mechanisms). The proposed Genetics course describes these pathways in a relatively superficial manner (highlighting only key players) and in the context of developmental events that use (and re-use) them, as well as in examples of the use of genetic epistasis in the analysis of development. Therefore the in-depth knowledge of these signaling transduction mechanisms at the cellular and molecular levels provided by Biochem 630 is complemented by material in our course, which adds a developmental biology context. The Department of Cell and Regenerative Biology (School of Medicine and Public Health) has two courses listed, Molecular and Cellular Organogenesis (Anatomy 675) and Mammalian Embryogenesis (Anatomy 675) that have limited overlap with this course. However, both the content and emphases of these courses is significantly different from that of the Animal Developmental Genetics course. Molecular and Cellular Organogenesis explores in depth the development of various organs and potential for regenerative biology in vertebrates, especially mammals, whereas the Animal Developmental Genetics course addresses limited cases of organ formation, often in invertebrate model systems, as examples for general developmental mechanisms such as morphogen action, pattern formation and developmental robustness, or to introduce tools used to specific model systems. Youngsook Lee, coordinator for this course, has been consulted with regards to potential course overlap and agrees with the above stated comparison. The Mammalian Embryogenesis course generates an in-depth analysis of early mammalian development, using a historical approach to classical methods by which the mammalian conceptus is built and emphasizing embryonic/extraembryonic interactions. It does not explicitly address the genetics of development, Hox genes and regeneration. The Animal Developmental Genetics course uses limited examples within the field of mouse research to highlight general developmental principles and the use of mouse models as a genetic system. The only potential overlap is in Week 10, and our discussion of embryonic stem cells; however, the Mammalian Embryogenesis course traces the history of these cells, the methodology used to produce them, and discusses them only insofar as a tool to create genetic knockout mutants via homologous recombination and blastocyst injection. It does not address the genetics of the mouse models. Karen Downs, instructor for this course, has been consulted with regards to potential course overlap and agrees with the above stated comparison.*

### 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.

*Biochemistry (200)*

*Zoology (970)*

*Cell and Regenerative Biology (217)*

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

*Francisco Pelegri, Professor Xin Sun, Associate Professor*

**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.**

[Syllabus 627 2013.pdf](#)

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course will help to broaden the choices available for the higher-level genetics classes. Development of this course stemmed from surveys of undergraduate students in the Genetics Major, which indicated a strong interest in an advanced course in Developmental Genetics, which would provide essential background and current findings in developmental biology and the promising field of Regenerative Medicine. This course is of particular interest to students interested in the field of developmental biology and the medical fields. A significant number of laboratories in the Departments of Genetics and Medical Genetics carry out research in developmental biology, and the course provides an essential basis and broadened knowledge for undergraduate students carrying out research in those laboratories. This course has been taught twice (Spring 2011, Spring 2013) under a temporary number (Gen 677) and has been well received.*

**Provide an estimate of the expected enrollment**

[26](#)

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

*This course meets twice a week for a total of 150 minutes. Course load and time outside class for assignments warrants a 3 credits load.*

**If this is a variable credit course, provide rationale**

**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?**

[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?

**Genetics 627 – Animal Developmental Genetics  
Spring 2013**

**Objective of the course: learn to analyze and present primary literature in Developmental Genetics.**

**Instructors:**

**Dr. Francisco Pelegri (FP)**

Genetics/Biotechnology Addition

Phone: 265-9286

email: [fjpelegri@wisc.edu](mailto:fjpelegri@wisc.edu)

**Dr. Xin Sun (XS)**

5262 Genetics-Biotechnology Center

Phone: 265-5405

email: [xsun@wisc.edu](mailto:xsun@wisc.edu)

For questions regarding materials, presentations and homework, students are encouraged to contact the instructor in charge of the week (in the Syllabus, initials next to Tuesday topic).

**Class: Tuesdays and Thursdays 9:30 – 10:45 am** in 1408 Genetics/Biotechnology Addition.

**Tuesday Lecture:** Background information on the week's topic. A review on the subject will be posted.

**Thursday Discussion:** Each student will plan, organize and deliver a presentation on one assigned or self-selected research articles. Students should contact the faculty in charge of the week as soon as possible to discuss potential article options. Please decide on the article at least 2 weeks prior to your presentation date and let the instructors know. The presentations should be approximately 20 minutes long, leaving 10 minutes for questions and discussions. Presenters please send your presentation powerpoint file to both instructors no later than the Wednesday noon prior to your presentation, so it can be uploaded on the website for student access.

***Suggested outline of presentation (~1 slide/minute):***

Background;

Big question of the study;

Each experiment: question, approach, result, interpretation;

Take home message: did the study address the big question and advance the field?

Presenter comments: do results support conclusions? future experiments?

On weeks with only one presenter, an additional discussion will follow, related to the week's topic.

*All students are required to read the review and research articles posted prior to class.*

**Office Hours:** by appointment, with the specific instructor who lectured on the topic that you have questions on.

**Class Website** at [Learn@UW](#).

The Website contains PDF copies of all of the required reading, the background review articles, and any assignments and their answer keys. Powerpoint presentations for the Tuesday lectures and Thursday presentations will also be posted as PDF files prior to the lectures/presentations. Please make sure that you can access the Website and that you can open and read the PDFs. Website also contains a copy of the Syllabus, and the Presentation Schedule.

**Grading:**

Midterm Exam I	25%
Midterm Exam II	25%
Presentation and student-led discussion	25%
Class assignments	15%
Class participation	10%

**Exams:** There will be two midterm exams, both in-class. One week before each exam, 1-3 research articles will be handed out. These articles will be based on topics that have been covered in class. For the exam, bring these articles, and any other relevant material that has been assigned in class (the exams will be **open book**). The exam questions will be a mixed format of questions based on these research articles and questions based on overall concepts covered in lectures, presentations and assignments.

**Presentations:** Each student will be in charge of one oral (powerpoint-based) presentation.

**Assignments:** These may be given as an in-class or take-home exercise, and will be based on the readings/lecture/presentation material of the week. There will be either web-based or paper copies of any relevant materials. Any take-home assignments are due on the following day of class unless otherwise specified. Assignments will be graded (and count toward 15% or the final score as above) unless otherwise specified. Succinct answers are encouraged. When appropriate, answer keys will be posted on the web after homework assignments have been handed in. For the May 3 discussion, students should identify a topic covered by the media related to subjects covered by the course, and submit a copy of the article by April 19.

**Class participation:** will be determined by your own questions or comments, during lecture or discussion, on weeks other than the week you are presenting. Regular attendance is expected.

Total point scores will be standardized to 100 and grade letter will be assigned as follows:  
A: > 90, AB: 85-90, B: 75-84, BC: 70-74, C: 60-69, D: 50-59, F <50.

**Reading Materials:** Most of the course will be based on review and research articles, which will be posted on our course website. There is no textbook for the course. Optional textbook for further information: Principles of Developmental Genetics (Sally A. Moody, Ed.), Academic Press. On reserve at Steenbock Library. New and used books are available in Amazon.com.

## Weekly topics:

### Week 1

- 1/22 General genetics principles review (FP)
- 1/24 Model organisms for studies of development and disease: Sample presentation and discussion (XS)

### Week 2

- 1/29 C. elegans: cell lineage analysis, cell death pathway, heterochrony and microRNAs, RNAi pathway and application (XS)
- 1/31 Student presentation

### Week 3

- 2/5 Drosophila: classical embryonic lethal screens and types of embryonic genes, gain of function screens, clonal analysis (FP)
- 2/7 Student presentation

### Week 4

- 2/12 Zebrafish: zygotic/maternal genes, basic body patterning, adult phenotypes (FP)
- 2/14 Student presentation

### Week 5

- 2/19 Mouse/chick: somitogenesis and periodicity, Hox genes and axial identity, left/right asymmetry, homologous recombination and knock out technology (XS)
- 2/21 Student presentation

### Week 6

- 2/26 Organogenesis: progenitor cell specification and organ morphogenesis (external and internal organs), organ size control, tissue-specific knockout and lineage analysis using cre/loxP system (XS)
- 2/28 Student presentation

### Week 7

- 3/5 Morphogens, gradients and developmental patterning (FP)
- 3/7 Student presentation

**Week 8**

- 3/12 Review I
- 3/14 Exam I (weeks 1-7)

**Week 9**

- 3/19 Redundancy (FP)
- 3/21 Student presentation

**3/23-31 *Spring break*****Week 10**

- 4/2 Stem cells: embryonic stem cells and iPS cells, adult stem cells, genetic control of stem cell maintenance and activation, stem cell-based therapies (XS)
- 4/4 Student presentation

**Week 11**

- 4/9 Regeneration: external organ and internal organ regeneration, species differences in regeneration capacity, development and regeneration comparison (XS)
- 4/11 Student presentation

**Week 12**

- 4/16 Evo Devo: evolution of developmental mechanisms (FP)
- 4/18 Student presentation

**Week 13**

- 4/23 Congenital disorders I (XS)
- 4/25 Student presentation, students submit Dev Gen and media article

**Week 14**

- 4/30 Intergenerational inheritance (FP)
- 5/2 Student presentation

**Week 15**

- 5/7 Student presentation (any topic above)
- 5/9 Review II

**5/12 –19 *Final exam week* (Exam II for contents week 8 - 14, time and place of exam TBA)**

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Population Genetics*

**Transcript Title (limit 30 characters)**

*Population Genetics*

**Three-digit course number**

*633*

**Is this an honors course?**

*No*

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

*No*

**Will this course be crosslisted?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Fall*



## Catalog Information

**Minimum credits**

3

**Maximum credits**

3

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*A graduate-level course focused on the interpretation of genetic variation in natural populations. We will study the basic models that connect genetic variation to underlying evolutionary and genetic processes, including mutation, recombination, genetic drift, migration, and natural selection. We will discuss methods for measuring DNA variation, including the analysis of genome-scale data sets.*

**Does the course have prerequisites or other requirements?**

Yes

**List the prerequisites and other requirements for the course**

*Genetics 466 or Consent of Instructor*

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

*Discussion*

*Lecture*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Patrick Litza*

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

Yes

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

*Genetics 645 (Modeling in Population Genetics and Evolution) This class is no longer offered (the instructor has left UW) and would be deleted from the catalog to avoid confusion.*

**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.)

*Adds diversity to genetics majors' and graduate students' advanced elective options. Provides a framework for understanding the relationship between genetic variation and harmful or selectively favored mutations, with relevance for biomedical science and agricultural breeding programs. Relates population processes such as migration to genetic variation, with applications for conservation and ecological research. Offers a framework for analyzing genetic variation at the genomic scale, which is rapidly gaining importance on this campus and beyond.*

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).

*Genetics advanced elective, Subset 1 (courses valid for Genetics major elective credit which are largely based on genetic analysis).*

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

*Population genetics focuses on the interpretation of genetic variation in natural populations. We will examine fundamental models that link genetic variation to evolutionary and genetic processes (e.g. mutation, recombination, genetic drift, migration, and natural selection). We will discuss methods for measuring DNA variation, including the analysis of genome-scale data sets, and learn how these methods are applied in the current scientific literature. Students will gain computational skills as they learn how to use population genetic simulation programs and analyze the resulting data. Each student will also conduct a research project investigating a population genetic question of interest to him/her, and present the results as a scientific poster. This instruction will contribute to the growing strength of population genetic research at UW-Madison, producing students who are better prepared to conduct novel research in this expanding field.*

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

*Provides a more focused emphasis on population genetics than Genetics 629 Evolutionary Genetics, which spends 1/3 of a semester on this topic at a more introductory level. No other significant overlap in course 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)

*Bret Payseur, Associate Professor John Pool, Assistant Professor*

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.

*Gen 633 Syllabus 2013.pdf*

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course will help to broaden the choices available for the higher level genetics classes. Students will receive intellectual background and research skills in a growing field with relevance for basic science, medicine, agriculture, and conservation. This course has been taught under a temporary number (Gen 677) since 2010 and has already been taught twice. Initially taught on alternate years, it has been well received and due to demand it will now be taught every Fall.*

**Provide an estimate of the expected enrollment**

*24*

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

*This course meets twice a week for a total of 150 minutes. Course load and time outside class for assignments warrants a 3 credits load.*

**If this is a variable credit course, provide rationale**

**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?**

*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?**

## Population Genetics

Genetics 633  
Fall 2013

**Instructors:** Bret Payseur, PhD  
Laboratory of Genetics  
Genetics/Biotechnology 2428  
425-G Henry Mall  
890-0867  
payseur@wisc.edu

John Pool, PhD  
Laboratory of Genetics  
Genetics/Biotechnology 5302A  
425-G Henry Mall  
265-1036  
jpool@wisc.edu

**Time:** Tuesdays and Thursdays  
9:30-10:45 AM  
(3 “instructional hours” and 6 out of class hours per week)

**Location:** Genetics/Biotechnology 1408

**Office Hours:** By appointment

### **Course Description / Learning Objectives:**

This is graduate level course in population genetics. We will describe methods for measuring DNA variation, discuss salient patterns from natural populations, and develop the concepts needed to draw evolutionary insights from DNA polymorphism data. We will study the basic models that connect genetic variation to underlying evolutionary processes. When possible, the special significance and challenges of analyzing genetic variation on a genomic scale will be emphasized. The primary goal is for students to obtain a working knowledge of population genetics that will enhance their research and broaden their perspective.

### **Prerequisite**

A basic Genetics course (Genetics 466 or equivalent)

### **Course Format and Expectations**

#### *Lectures and Discussions*

Approximately two hours of class time will be devoted to lectures each week. The remaining half hour will involve discussion of homework assignments. The discussion

will be an integral part of the course and each student should plan to participate. This format of mixing lectures with discussions is intended to foster active learning and to excite students about the importance of population genetics for contemporary biological research. Students are *strongly encouraged* to prepare for each class by completing the assigned reading and formulating questions for discussion. Lectures and readings will be posted at Learn@UW.

### *Attendance*

The success of this course will depend on regular student attendance. Attendance is mandatory.

### *Evaluation*

Student learning will be measured in two ways. There will be weekly homework assignments to build understanding of general concepts and to apply this new knowledge. Some homework assignments will focus on problems or discussion questions related to assigned papers. Other assignments will involve generating and interpreting simulated population genetic data using computer programs (see "Introduction to Computational Exercises"). Homework assignments will constitute 120 possible points (12 assignments x 10 points per assignment).

Students will also conduct an independent research project, involving the analysis of genetic variation from real population genetic data (using published data or their own unpublished results) or from simulated data. Each student will prepare a research poster to communicate the results; these posters will be presented on the last day of class. This project will be worth 80 possible points, for a total of 200 possible points. Final grades will be assigned based on the distribution of student point totals.

A typical relationship between final percentage (total points divided by 2) and letter grades might be: 85-100 A, 80-84 AB, 75-79 B, 70-74 BC, 60-69 C, 50-59 D, 0-49 F.

### **Required Readings**

#### *Primary Textbook*

Population Genetics (2009)  
Matthew Hamilton  
John Wiley and Sons

#### *Selected Chapters*

Molecular Population Genetics (unpublished)  
Matthew Hahn  
Sinauer and Associates  
Available at Learn@UW (please do not circulate)

#### *Journal Articles*

Selected readings from the primary literature (provided through Learn@UW)

**Tentative Class Schedule** (periodic updates will be posted to the course web page)

<b>Date</b>	<b>Topic</b>	<b>Instructor</b>	<b>Reading, Homework</b>
Sept. 3	The purpose of population genetics; historical and current controversies; evolutionary processes	Payseur	Hamilton 1.1-1.3
Sept. 5	Describing genetic variation; patterns of variation in natural populations	Payseur	Hamilton 2.1-2.5 Hahn "Describing Variation"
Sept. 10	Population Size 1: Genetic drift and effective population size	Payseur	Hamilton 3.1-3.5 Homework due
Sept. 12	Population Size 2: Coalescent theory	Payseur	Hamilton 3.6-3.7 Hahn "The Coalescent"
Sept. 17	Mutation 1: Types of mutation; estimating mutation rates; mutation patterns in model organisms	Payseur	Hamilton 5.1 Homework due
Sept. 19	Mutation 2: Mutation models; describing and interpreting patterns of diversity	Payseur	Hamilton 5.3-5.5 Hahn ms manual
Sept. 24	Mutation 3: Neutral theory of molecular evolution; neutral diversity in natural populations	Payseur	Hamilton 8.1 Hahn Homework due (C)
Sept. 26	Recombination 1: Estimating recombination rates; haplotypes; measuring linkage disequilibrium	Payseur	Hamilton 2.7 Hahn "Recombination"
Oct. 1	Recombination 2: Linkage disequilibrium in natural populations	Payseur	Homework due
Oct. 3	Gene Flow 1: Non-random mating, inbreeding and population structure; describing population structure	Payseur	Hamilton 2.6, 4.1-4.6 Hahn "Population Structure"
Oct. 8	Gene Flow 2: Identifying distinct populations and estimating gene flow	Payseur	Homework due (C)

Oct. 10	Gene Flow 3: Determinants of gene flow; gene flow in natural populations; speciation	Payseur	
Oct. 15	Changes in Population Size	Payseur	Homework due
Oct. 17	Demographic inference 1: methods using allele frequencies or haplotypes from population genomic data	Pool	Pool <i>et al.</i> 2010
Oct. 22	Demographic inference 2: approximate Bayesian computation	Pool	Csillery <i>et al.</i> 2010 Wegmann <i>et al.</i> 2010 Homework due (C)
Oct. 24	Negative selection 1: Single locus models of natural selection; selection and mutation; selection and drift; nearly neutral theory	Pool	Hamilton 185-198, 222-226, 240-241
Oct. 29	Negative selection 2: Effects of selective constraint on sequence polymorphism and divergence	Pool	Keightley <i>et al.</i> 2005 Homework due
Oct. 31	Negative selection 3: Background selection; the relationship between recombination and diversity	Pool	Begun and Aquadro 1992 Charlesworth <i>et al.</i> 1993
Nov. 5	Positive selection 1: Selective sweeps - basic model, coalescent model	Pool	Homework due
Nov. 7	Positive selection 2: Influence of selective sweeps on genetic variation (diversity, frequencies, haplotypes and LD) and methods for detection	Pool	msms manual Thornton <i>et al.</i> 2007
Nov. 12	Positive selection 3: Positive selection on standing genetic variation; incomplete sweeps and methods for detection	Pool	Pritchard <i>et al.</i> 2010 Karasov <i>et al.</i> 2010 Homework due (C)
Nov. 14	Positive selection 4: Population-specific positive selection - effect on genetic differentiation and methods for detection	Pool	Yi <i>et al.</i> 2010 Sabeti <i>et al.</i> 2007



Nov. 19	“Balancing selection”: heterozygote advantage; diversifying and frequency-dependent selection; temporally and spatially varying selection	Pool	Hamilton 198-203, 218-219, 230-232 Homework due (C) Charlesworth 2006
Nov. 21	Genome-wide selection signals 1: Divergence, polymorphism, and evidence of positive selection	Pool	Hahn Chapter 7 McDonald/Kreitman 1992 Andolfatto 2005
Nov. 26	Genome-wide selection signals 2: Recurrent hitchhiking model; the apparent prevalence of positive selection in different species	Pool	Jensen <i>et al.</i> 2008* Sella <i>et al.</i> 2009 Hernandez <i>et al.</i> 2011 Homework due
Nov. 28	No Class (Thanksgiving)		
Dec. 3	Genome-wide selection signals 3: Natural selection vs. population history - selectionist/neutralist debate, population genomic data	Pool	
Dec. 5	Next generation sequence data – challenges and potential, the future of population genetics	Pool	
Dec. 10	Genome-wide Association Studies	Payseur	
Dec. 12	Project Presentations	Payseur, Pool	

## New Course Proposal

**Subject** Genetics (412)  
**Proposer** Francisco J Pelegri

**Status** Under Review by School/College

### Basic Information

**Course Title**

*Evolutionary Genomics*

**Transcript Title (limit 30 characters)**

*Evolutionary Genomics*

**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?**

*No*

**Note the crosslisted subjects**

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Every Other Spring*

## Catalog Information

**Minimum credits**

2

**Maximum credits**

2

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*We will present and discuss modern topics in evolutionary genomics, including genomic approaches, their application to evolutionary biology, and insights gleaned from such studies. Topics include evolution of genome architecture, gene content, and sequences. The course also covers molecular evolution as applied to the genome scale.*

**Does the course have prerequisites or other requirements?**

Yes

**List the prerequisites and other requirements for the course**

*Genetics 466 or Biocore 301/302 sequence or equivalent, and consent of instructor*

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

*Lecture*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Michael R Culbertson*

**Designee of chief academic officer for approval authority**

*Francisco J Pelegri; Kathleen A Zweifel; Philip Anderson*

**If there are additional contacts, please list**

*Patrick Litza*

**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.)

*This course fulfills a growing need to cover more genomic and quantitative analysis in the genetics curriculum. As genomic analysis becomes an increasingly important part of genetics, it is important that students get exposure and training in this area. The course adds diversity to the genetics majors advanced elective options.*

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).

*Genetics advanced elective, Subset 1 (Subset 1 refers to courses valid for Genetic major elective credit which are largely based on genetic analysis)*

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 rapid advances in genomic technologies, and the emergence of large numbers of genome sequences within and across species, makes it now possible to study organismal evolution on a genome-wide scale. We will present and discuss modern topics in evolutionary genomics, including genomic approaches, their application to evolutionary biology, and insights gleaned from such studies. Topics covered will include evolution of genome structure and gene content, the role of segmental and whole-genome duplication in the evolution of gene function and expression, theories of molecular evolution applied on a genomic scale, variation in gene expression within and across species, evolution of cis-regulatory elements, and more.*

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

*This course complements other courses on genomics (e.g. Genetics 677: Special Topics in Genetics, Proteomics, and Bioinformatics, and Genetics 875: Advanced Genomic and Proteomic Analysis), population genetics (Genetics 610: Quantitative Genetics), and evolution (Genetics 629: Evolutionary Genetics). However, due to the advanced level of analysis and synthesis of concepts from various fields, 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)

*Audrey Gasch, Associate Professor*

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.

*[Gen 660\\_Syllabus2012.pdf](#)*

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course provides more exposure to genomic and quantitative studies. As genomic and quantitative analysis become increasingly important in genetics, it is critical that our students get proper training in these areas. The course also will help to broaden the choices available for the higher-level genetics classes.*

**Provide an estimate of the expected enrollment**

*15-20*

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

*This course meets twice a week for a total of 100 minutes per week. Course load and time outside class for assignments warrants a 2-credit load.*

**If this is a variable credit course, provide rationale**

**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?**

*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?**

# Genetics 660: Evolutionary Genomics

## Spring 2012, 2 credits

**Class Meets:** Tuesday and Thursday, Room: **1408 Biotech Center**, Time: 9:55-10:45am

**Course wiki (currently read-only):**

<http://akka.genetics.wisc.edu/groups/genetics677/>

**Instructor:** Audrey Gasch: [agasch@wisc.edu](mailto:agasch@wisc.edu)

Phone: 265-0859

The rapid advances in genomic technologies, and the emergence of large numbers of genome sequences within and across species, makes it now possible to study organismal evolution on a genome-wide scale. In this two-credit course, we will present and discuss modern topics in evolutionary genomics, including genomic approaches, their application to evolutionary biology, and insights gleaned from such studies. Topics covered will include evolution of genome structure and gene content, the role of segmental and whole-genome duplication in the evolution of gene function and expression, theories of molecular evolution applied on a genomic scale, variation in gene expression within and across species, evolution of cis-regulatory elements, and more. The course is open to graduate and upper-level undergraduate students who have had Genetics 466 or equivalent & consent of instructor.

**Organization:** The course consists of 1-2 lectures on each topic, followed by a paper discussion to be led by each student. Students will be assigned one paper to present in a “journal club” style (presenting a synopsis of the paper, background information that may require some background reading, critical dissection of the results, summary of directly relevant supplementary information, and discussion of the main points of the paper).

**Class Paper:** The main assignment for the class, outside of assigned paper presentations and general participation, is a 5-7 page long final paper (including figures, extra pages can be used for references). Graduate students are expected to write a single-aim proposal on a question related to evolutionary genomics that includes: Background, Specific Aim & Research Description, Potential Pitfalls and Alternate Approaches. Undergraduate students are encouraged to submit a single-aim research proposal, but have the option of doing a 5-7 page (including figures) literature review on a specific topic instead.

## **Grades:**

**25% Paper Presentation in Class**

**25% Attendance and Participation**

**50% Final Class Paper**

## **Grading scale:**

90-100%: A

85-89%: AB

75-84%: B

70-74%: BC

50-69%: C

25-49%: D

<25%: F

## **Attendance policy:**

Attendance is expected, unless prior notification is given, and will be factored into the final grade. An A grade requires attendance at all lectures or prior approval of absence.

## **Reading Schedule:**

Weekly reading (broken into REQUIRED and SUGGESTED readings) will be listed on the course wiki. Students are expected to have read the REQUIRED readings Before Class that day.

Pdf's of papers as well as powerpoint lecture slides will be available for download from the wiki.

## **Required Activities:**

Complete the required reading before the associated class section.

Participate in class discussions. An A grade requires participation in class discussions.

Complete class paper by deadline. Late papers will be docked 0.5 grade per day late.





**Genetics 677: Evolutionary Genomics, Spring 2012**

Week 1A	1/24/12	Intro, phylogeny primer
Week 1B	1/26/12	Anatomy of a genome project
Week 2A	1/31/12	<b>PAPER DISCUSSION</b> Clark et al. Nature. 2007. Evolution of genes and genomes on the Drosophila phylogeny.
Week 2B	2/2/12	Orthology, paralogy, and gene history
Week 3A	2/7/12	Evolution of new gene functions
Week 3B	2/9/12	<b>PAPER DISCUSSION</b> Zhou et al. 2008. Genome Research. On the origin of new genes in Drosophila.
Week 4A	2/14/12	Whole genome duplication (Dana Wohlbach, guest lecturer)
Week 4B	2/16/12	<b>PAPER DISCUSSION</b> Rodgers-Melnick et al. 2011. Contrasting patterns of evolution following whole genome versus tandem duplication events in Populus.
Week 5A	2/21/12	Horizontal Transfer & Bacterial Genomics
Week 5B	2/23/12	<b>PAPER DISCUSSION</b> Smillie et al. Nature 2011. Ecology drives a global network of gene exchange connecting the human microbiome.
Week 6A	2/28/12	Molecular evolution - Part I
Week 6B	3/1/12	<b>PAPER DISCUSSION</b> Fay, Wycoff, Wu. Nature. 2002. Testing the neutral theory of molecular evolution with genomic data from Drosophila.
Week 7A	3/6/12	Molecular evolution - Part II: genome-wide scans
Week 7B	3/8/12	<b>PAPER DISCUSSION</b> Sabeti et al. 2007. Nature. Genome-wide detection and characterization of positive selection in human populations
Week 8A	3/13/12	QTL mapping
Week 8B	3/15/12	<b>PAPER DISCUSSION</b> Colosimo et al. 2004. PLoS Biol. The genetic architecture of parallel armor plate reduction in threespine sticklebacks.  Colosimo et al. 2005. Science. Widespread Parallel Evolution in Sticklebacks by Repeated Fixation of Ectodysplasin Alleles

Week 9A	3/20/12	Evolution of gene expression
Week 9B	3/22/12	<b>PAPER DISCUSSION</b> Brawand et al. Nature 2011. The evolution of gene expression levels in mammalian organs.
Week 10A	3/27/12	eQTL mapping & the cis-trans debate
Week 10B	3/29/12	<b>PAPER DISCUSSION</b> Tirosh et al. Science 2009 A yeast hybrid provides insight into the evolution of gene expression regulation.
4/2/-4/6/12		Spring Break
Week 11A	4/10/12	Evolution of cis-regulatory motifs
Week 11B	4/12/12	<b>PAPER DISCUSSION</b> Moses et al. PLoS Comp Bio. 2006. Large-scale turnover of functional transcription factor binding sites in Drosophila.
Week 12A	4/17/12	Evolution of cis-regulatory networks
Week 12B	4/19/12	<b>PAPER DISCUSSION</b> Tsong Nature 2006. Evolution of alternative transcriptional circuits with identical logic.
Week 13A	4/24/12	Mammalian genome evolution
Week 13B	4/26/12	<b>PAPER DISCUSSION</b> K. Pollard et al. 2006. PLoS Genetics. Forces shaping the fastest evolving regions in the human genome.
Week 14A	5/1/12	Final wrap-up, remaining questions
Week 14B	5/3/12	<b>PAPER DISCUSSION</b> Clark et al. Nature. 2007. Evolution of genes and genomes on the Drosophila phylogeny.
Week 15A	5/8/12	Prof. Chris Hittinger, guest lecture
Week 15B	5/10/12	Prof. John Pool, guest lecture

## New Course Proposal

**Subject** Interdis Courses (C A L S) (494)

**Status** Under Review by Subject Owner

**Proposer** John A Ferrick

### Basic Information

**Course Title**

*Int'l Health & Nutrition: Uganda Int'l Learning Experience*

**Transcript Title (limit 30 characters)**

*Int'l Health Nutrition- Uganda*

**Three-digit course number**

*360*

**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**

*Biomolecular Chemistry (758)*

*Nutritional Sciences (694)*

**What is the primary divisional affiliation of this course?**

*Biological Sciences*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Fall*

## Catalog Information

**Minimum credits**

2

**Maximum credits**

3

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*The focus of the Uganda Study Abroad: International Health and Nutrition program is to learn firsthand about the many health and nutrition issues faced by people in a developing country. Uganda, "The Pearl of Africa," offers exciting opportunities to learn about these issues from both a classroom perspective and through real world experiences. During the fall course students will develop sets of questions about topics people in developing countries must confront in their daily lives relating to their health and nutrition. These questions then form the framework for the course as well as the subsequent three-week international experience in Uganda.*

**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

*Discussion*

*Field Studies*

*Lecture*

*Seminar*

## Administrative Information

**Chief Academic Officer**

*Sarah K A Pfatteicher*

**Designee of chief academic officer for approval authority**

*Debra K Schiess; Susan K Gisler*

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.)

*Twelve slots are reserved for students undertaking the Undergraduate Certificate in Global Health. This course will be included as one of the field study programs that meet the requirements of this certificate.*

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).

*Meets the requirements of the Undergraduate Certificate in Global Health and the requirements of the CALS International Certificate.*

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 focus of the Uganda Study Abroad: International Health and Nutrition program is to learn firsthand about the many health and nutrition issues faced by people in a developing country. Uganda, "The Pearl of Africa," offers exciting opportunities to learn about these issues from both a classroom perspective and through real world experiences. During the fall course students will develop sets of questions about topics people in developing countries must confront in their daily lives relating to their health and nutrition. Some of the questions they have helped students examine are: What are the common nutritional deficiencies in developing countries? Why do people have vitamin deficiencies? How do politics and economics affect the health of people in developing countries in general and Uganda in particular? How is HIV/AIDS affecting life in Uganda? Why has Uganda been so successful in its fight against HIV/AIDS? What is the relationship between nutrition and the many infectious diseases confronting people in Uganda - most specifically, the children? These questions then form the framework for the course as well as the subsequent three-week international experience in Uganda. During the field experience students will participate in lectures, field trips to rural health centers, visits to Mulago Hospital (the National referral hospital), HIV/AIDS clinics and support organizations, child nutrition centers and homes in rural villages to learn more about specific cultural, social and environmental factors that impact people's health and nutrition. Students will also make strong connections to the relationship between food; how it is grown, stored, and consumed and health and nutrition. Field-trips to agricultural research stations, farms, and local markets highlight these relationships.*

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

*The course exposes students to international health & nutrition issues experienced by people in developing countries in general and Uganda in particular. The type of content is shared by other Undergraduate Certificate in Global Health field courses, but goes in more depth by having the semester seminar as a part of the program 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)

*James Ntambi, Professor of Biochemistry John Ferrick, Director of CALS International Programs*

**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.**

*Director John Ferrick's (CALS International Programs) experience developing and managing international development projects has contributed to the creation of a program of study that provides students with unique opportunities to broaden their knowledge and understanding of health and nutrition issues confronting people around the world.*

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

*Fall 2012 Syllabus.pdf*

## Justifications

**Explain how this course contributes to strengthening your curriculum**

*This course provides an opportunity for students interested in careers in a health profession or working with health related questions (e.g. How does communications techniques, processes, etc. impact people's abilities to make informed health decisions?) connect what they learn in the classroom with real world learning opportunities. This connection is an incredibly powerful tool for deepening the educational experience that students receive here at UW-Madison.*

**Provide an estimate of the expected enrollment**

*15-16 students per year*

**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 meet in class 1hr and 20 min. each week. There are also 3 or 4 times outside of class that students meet to work on projects and to gain special tools/skills needed when working with communities in Uganda. An example of this is a day-long training program on Participatory Rural Appraisal and Planning that is a methodology that actively engages the local community in ways to ID community problems and solutions to these problems.*

**If this is a variable credit course, provide rationale**

*Would like to make it 3 credits*

**Additional comments (optional)**

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

*John Ferrick Biosketch2012.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?**

*Students can approach their learning about Health & Nutrition issues from a wide-range of disciplines including Political Science, Economics, Gender Studies, Law, Communications, Sociology, etc. These are disciplines identified with L&S and therefore, are important to students seeking to connect their studies in these areas with health & nutrition.*

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

*Intermediate*

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

*Yes*

**Indicate which:**

*S-Social Science*

## General Education Designations

**Should the course be reviewed for the general education requirement?**

*Yes*

**Which requirements?**

*Communication B*



3/25/13

International Health & Nutrition: Uganda International Learning Experience

Fall 201X – Inter Ag 360 Seminar  
Topics in International Health and Nutrition  
Wednesday 3:30-4:50 pm  
38 Agriculture Hall  
(unless otherwise notified)

**Course Learning Goals and Objectives**

- Active learning participants will appreciate and try to understand cultural differences
  - Compare a specific element of Ugandan culture to U.S. culture and record your comparison with a reflection or diagram in your portfolio
  - Interview at least three Ugandans about their impression of the U.S. and why? Summarize their impressions and why? Pay attention to culturally authentic meals and how people behave in restaurants. Describe the restaurant and provide examples of a “typical menu” and description of the food.
  - Learn about an important Ugandan historical event and describe its significance.
  - Interview at least three Ugandans about a current world event and summarize their views on the subject.
- Active learning participants will reflect on their personal values and their own culture
  - Write a 1-2 page response to any of the following:
    - Pay attention to how group dynamics and taking place. Do you think that the dynamics would differ if we were on a study tour of the U.S. rather than Uganda?
    - Explain to a group of young Ugandan students which you believe are important values of the culture in the U.S. and of the Ugandan culture. Choose values from each culture that you think would benefit the other culture.
    - What do you think you could do to “help” in Uganda? Why?
    - Devise a plan to help a Ugandan student who would come to UW-Madison to study for a semester. What would you advise them to do/not to do to help with cultural adjustment and why?
    - Plan how you would explain and justify to high school students from your hometown something about the U.S. culture that you would want to change and something that you would not want to see changed.
    - Write a poem or song about a particular event or experience that impressed you during the trip.
    - Use one or more pictures and write a meaningful story that explains what they picture(s) show and why it is relevant and meaningful to you.

3/25/13

- Active learning participants will reflect on Health Care of Agricultural Systems, clean water, nutrition, infection diseases, etc.
  - Collect “quotes”, pictures, and thoughts from discussions to compare health care systems by analyzing what you believe are their strengths and weaknesses in the context of sustainable development.
  - Rank the health systems as “lowest, intermediate, highest” for access to trained health care workers, crowding, access to medical equipment. Explain your ranking.
  - Interview any of the individuals who will be guiding us on our hospital/clinic visits and describe in as many details as possible: patient care, access to drugs, access to doctors, and access to proper equipment.
  - Record specific examples of inter-relationship between economics and health care in Uganda and the U.S. as they came up during our visits.
  - Interview our university hosts to learn about their views of the progress made and the main issues now facing the people they word with-both rural and urban.

### Assignments

Deadline	Item	Grade (%)
Each week	Newspaper articles	10
Dec. 5	Initial Questions	10
Dec. 5	Exam	10
Dec. 14	Outside class activities	10
End of program	Final Portfolio Entries & Final Project <ul style="list-style-type: none"><li>• Completeness (number of entries)</li><li>• Evidence of critical thinking/ depth of meaning and thoroughness</li><li>• Use of variety of artifacts (pictures, maps, drawing, brochure, video, audio)</li><li>• Originality in formatting and presentation; Grammar and spelling</li></ul>	40
End of program	Class participation & attendance	15
End of program	Evaluation	5

### Grading

A = 95%, AB = 94-85%, B = 84-75%, C = 74-65%, D= 64-55%, F = 55%

3/25/13

### Fall Course Schedule

Date	Activity	Person
Sept. 5 (1)	Introduction – Schedule/Program Overview, Safety	James/John (Memorial Union)
12 (2)	Projects, Service-learning, VHP – Cultural Dinner at East African Restaurant on State St.	James/John (Buraka's)
19 (3)	Framework – MDGs and Projects & Health	James/John & Linda Johnson, UHS (Confirmed)
26 (4)	A History of African Colonialism	Jim Delehanty (Confirmed)
Oct. 3 (5)	Development and Economics of Development Projects	James/John
10 (6)	General Overview – Global Health & Nutrition Issues	Ken Shapiro (Confirmed)
17 (7)	Review	James/John
24 (8)	Health Care System in Uganda	Angela Mckenzie (confirmed)
31 (9)	Malnourishment	Julie Thurlow (Confirmed)
November 7 (10)	Malaria	Susan Paskewitz (confirmed)
14 (11)	A Ugandan Perspective – women's perspectives	Solomy Ntambi
21 (12)	THANKSGIVING – Group Work	THANKSGIVING
28 (13)	AIDS and Education	James/John
December 5	Exam – Questions Due	James/John

3/25/13

(14)		
12 (15)	Ugandan Culture, Orientation/Questions & Wrap-up	James/John
<b>DEC. 26</b>	<b>LEAVE FOR UGANDA</b>	

### Readings

Dead Aid: Why Aid is Not Working and How There is a Better Way for Africa by Dambisa Moyo

RX for Survival <http://www.pbs.org/wgbh/rxforsurvival/>

Other readings as assigned

3/25/13

**Uganda Field Experience**  
**December 26, 2012 – January 17, 2013**

Time	Monday 24 Dec. 2012	Tuesday 25 Dec. 2012	Wednesday 26 Dec. 2012	Thursday 27 Dec. 2012	Friday 28 Dec. 2012	Saturday 29 Dec. 2012	Sunday 30 Dec. 2012
8.30-10.00			<b>DEPARTURES</b>		<b>BREAKFAST</b>	Health and Safety	Leave <b>EARLY</b> for QENP Ronnie/John
10.00-11.00			<b>DEPART FOR UGANDA</b>		Leave for Mulago Ronnie/students	Program Overview	<b>This is a long drive 10-12 hours. Bring snacks!</b>
11.30-1.00			<b>DEPART FOR UGANDA</b>		Tour Mulago Hospital Complex Ronnie/students  (We will split into small groups)	Walk around Mukono	Accommodation s at Albertine Rift Safari Camps and Lodges in QENP
<b>1.00-2.00</b>			<b>DEPART FOR UGANDA</b>		<b>LUNCH – At Nommo Gallery</b>		<b>LUNCH</b>
2.00-5.00			<b>DEPART FOR UGANDA</b>		Imelda/Ronnie Forex, banks. City Tour Ronnie		

3/25/13

DINNER			DEPART FOR UGANDA		DINNER	DINNER	DINNER – Buffet at Hostel
Evening			DEPART FOR UGANDA	ARRIVAL – Stay at Lweza Guest House			

Time	Monday 31 Dec. 2012	Tuesday 1 Jan. 2013	Wednesday 2 Jan. 2013	Thursday 3 Jan. 2013	Friday 4 Jan. 2013	Saturday 5 Jan. 2013	Sunday 6 Jan. 2013
8.30-10.00	Visit surrounding communities & check on health, food & educational facilities	Game Drive	<b>Leave for Kabale</b>  This is another long drive 6-8 hours. Bring snacks!  Accommodations at Jopfan Hostel	Kabale Hospital (You will make contacts and go back to talk to specific people about your topics)	Other project activities to be determined  • Visit water catchment systems and other programs	Other project activities to be determined	Lake Bunyonyi (FREE DAY) • Boat ride • Swimming • Nature walks, etc.
10.00-11.00							
11.30-1.00							
1.00-2.00	LUNCH	LUNCH	LUNCH at Ntungamo Town	LUNCH	LUNCH	LUNCH at Overland	LUNCH at Overland
2.00-5.00	FREE TIME • Bird watching	• Launch Trip on the Kazinga Channel at 3:00pm	FREE TIME	Return to Kabale Hospital for follow-ups	Other project activities to be determined	To Lake Bunyonyi and Overland Safari camp	

3/25/13

DINNER	DINNER – Buffet at Hostel	DINNER – Buffet at Hostel	DINNER Jophan Buffet	DINNER at Little Liz in Kabale	DINNER – Buffet at Jophan	DINNER – Buffet at Overland	DINNER – Buffet at Overland
Evening	NEW YEAR'S EVE in QENP!						

Time	Monday 7 Jan. 2013	Tuesday 8 Jan. 2013	Wednesday 9 Jan. 2013	Thursday 10 Jan. 2013	Friday 11 Jan. 2013	Saturday 12 Jan. 2013	Sunday 13 Jan. 2013
8.30-10.00	Visit communities around lake	Leave for Mukono  This is another long drive 8-10 hours with stop at the Equator  Bring snacks!	Makerere University  Visit Mwanamugimu Child Nutrition Unit	• Mobile Clinic	• Mobile Clinic (cont)	Source of the Nile and Buggagali Falls in Jinja	FREE
10.00-11.00							
11.30-1.00	Visit Private Hospital?  Other activities to be determined						
1.00-2.00	LUNCH	LUNCH on the road	LUNCH	LUNCH	LUNCH at Mulago	LUNCH in Jinja	LUNCH
2.00-5.00	Other activities		US Embassy	• Mobile	• Mobile		

3/25/13

	to be determined and return to Jophan			Clinic	Clinic (cont)		
DINNER	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER
Evening							Ndere Dance Troupe

Time	Monday 14 Jan. 2013	Tuesday 15 Jan. 2013	Wednesday 16 Jan. 2013	Thursday 17 Jan. 2013	Friday 18 Jan. 2013	Saturday 19 Jan. 2013	Sunday 20 Jan. 2013
8.30-10.00	Lweza Service Learning Projects	Lweza Service Learning Project	Presentations Free	DEPARTURE			
10.00-11.00							
11.30-1.00							
1.00-2.00	LUNCH AT LWEZA						
2.00-5.00	Lweza Service Learning Projects						
DINNER	DINNER	GROUP DINNER					
Evening							



3/25/13

## BIOGRAPHICAL SKETCH

NAME John A. Ferrick	POSITION TITLE Director, International Programs, College of Agricultural and Life Sciences
-------------------------	--

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Wisconsin, Madison, WI	B.S.	1980	Secondary Education
University of Wisconsin, Madison, WI	M.S.	1987	Agriculture Extension/Adult Education

### A. Positions and Employment.

2009 - Present	<u>Director</u> – Office of International Programs (IP), UW-Madison, College of Agricultural and Life Sciences (CALs), UW-Madison Oversee the development of international activities that include international research, outreach and instruction for faculty and staff. Also included are student centered international programs. Teach two international courses.
2011 - 12	<u>Assistant Dean</u> – Division of International Studies, UW Madison Working with science faculty and staff on efforts to internationalize their work.
2006 - 2009	<u>Associate Director and Faculty Associate</u> , IP/CALs Manage international unit. Work with faculty/staff on development and management of externally funded international projects. Evaluate projects and work with compliance. Oversee student centered international programs. Teach two international courses
2002 - 2005	<u>Director</u> – CALs Study Abroad Programs, CALs Developed and managed all study abroad activities. Initiated new agreements and advised students. Responsible for program budget development and management.
1992 - 2002	<u>Lead Evaluator/Associate Director</u> , CALs Developed and facilitated College-wide strategic planning processes. Associate Director and lead Evaluator on W.K. Kellogg Foundation funded project aimed at reinventing land-grant colleges through processes seeking to catalyze institutional change. Work extensively with university internal constituents and community-based organizations. Developed budgets, wrote grants and reports.
1999 - 2000	<u>Executive Director</u> – Wisconsin Rural Development Center, a nonprofit rural development center. Responsible to 13-15 member Board of Directors
1990 - 1992	<u>Country Director and Associate Director for Programming and Training</u> - U.S. Peace Corps, Fiji/Tuvalu and Papua New Guinea Worked with government and local communities to develop and manage programs in the areas of Community Development and Planning, Health, Small Business Development, Rural and Marine Aquaculture, Computer Education, Architecture and Energy Planning. Programs supported over 125 volunteers.
1989- 1990	<u>Program Director</u> - U.S. Committee for Scientific Cooperation with Vietnam and Laos - University of Wisconsin/Madison Monitored and assessed development programs in education and health related field. Developed scientific exchange program between Vietnam and the U.S.
1988 - 1989	<u>Training Director</u> - Experiment in International Living – Vermont Developed, facilitated, and managed all training components of international programs. Developed training materials and budgets.

1988	<u>Consultant/Program Manager</u> - African American Institute - New York Managed Southern Africa Training Program for South African and Namibian refugees.
1987 - 1988	<u>Director, Cross-Cultural Training</u> - Refugee Processing Center - The Philippines Developed, implemented and evaluated training programs for SE Asian refugees.
1985 - 1990	<u>Lead Consultant</u> – US Peace Corps – Washington, D.C. Planned, implemented, and evaluated adult experiential training programs. Consultant for Chicago, Minneapolis and Miami offices.
1984 - 1985	<u>Training Director</u> - US Peace Corps - Botswana, Southern Africa Developed, facilitated, and evaluated training programs.
1981 - 1984	<u>Peace Corps Volunteer</u> - US Peace Corps - Lesotho, Southern Africa Math and Science Teacher

## **B. Grants/Funding Source**

Dairying in Mexico – USAID, Norman Borlaug Fellows – USDA  
 Health and Nutrition in Uganda - US Department of State and Baldwin Foundation  
 PIKA India – USAID, Khorana Program – Internal to UW and Indian Government  
 Madison Initiative for Undergraduates – UW Initiative  
 Graduate Student Training – IGERT, China - NSF  
 Babcock Institute for International Dairy Research and Education – USDA  
 Uganda – HED/USAID and Ira and Ineva Reilly Baldwin Grant  
 Norman Borlaug Scholars – Have assisted in mentoring over 12 Borlaug Scholars

## **C. Teaching Experience**

1998 - Present Int'l Issues in Agriculture, Environment, Natural Resources and the Life Sciences  
 2002 – Present International Health and Nutrition  
 1998 – 2006 Community Scholars Program (CSP) UW-Madison

## **D. Strategic Planning/Consulting Experiences**

WI Food System Partnership, CALS, UW-Madison, Wisconsin Agribusiness Council,  
 Wisconsin Democracy Campaign, Wisconsin Migrant Coalition, National Association for  
 Women in Science, United Neighborhood Centers of Madison, Atwood Community Center  
 and the United States Peace Corps

## **E. Business Experience**

Established the English Language Center - A Limited Liability Company that assisted students of  
 English as a Second or Foreign Language. Published ESL Newsletter.

## **F. Professional Development**

2009 - Current Board on Agriculture Assembly, Association for Public & Land-Grant Universities  
 Chair, International Agriculture Section, APLU  
 Current Advisory Board, Global Health Institute  
 1995 - 2000 Board of Directors – Wisconsin Migrant Coalition, Wisconsin Citizen Action  
 Coalition, Community Shares of Wisconsin and the Partner Shares Program  
 1995-1998 Board of Directors - United Neighborhood Centers and Atwood Community Center  
 of Madison  
 1992-present Member of the campus Quality Development Network  
 1993 The Seven-Step Approach to Problem-solving in Quality Management and W.  
 Edwards Deming's Quality Improvement.  
 Pre-1990 Developed, facilitated and participated in programs on leadership and training skills  
 development and techniques for facilitation and management.

## New Course Proposal

**Subject** Art History (180)

**Status** Under Review by School/College

**Proposer** Anna V Andrzejewski

### Basic Information

**Course Title**

*Dimensions of Material Culture*

**Transcript Title (limit 30 characters)**

*Dimensions-Material Culture*

**Three-digit course number**

*264*

**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**

*Anthropology (156)*

*Landscape Architecture (520)*

*Design Studies (359)*

*History (448)*

**What is the primary divisional affiliation of this course?**

*Arts & Humanities*

**Is this a topics course?**

*No*

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

*No*

**If yes, please justify**

**Typically Offered**

*Every Other Spring*

## Catalog Information

**Minimum credits**

4

**Maximum credits**

4

**Grading System**

A-F

**Course Description (will be published in Course Guide)**

*This course introduces students to the interdisciplinary field of material culture studies. It is intended for students interested in any professional endeavor related to material culture, including careers in museums, galleries, historical societies, historic preservation organizations, and academic institutions. During the semester, students have varied opportunities to engage with and contemplate the material world to which people give meaning and which, in turn, influences their lives. Sessions combine in some way the following: presentations from faculty members and professionals who lecture on a phase of material culture related to his/her own scholarship or other professional work; discussion of foundational readings in the field; visits to collections and sites on campus and around Madison; discussion of readings assigned by visiting presenters or the professors; and exams and short papers that engage material culture topics.*

**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**

*Discussion*

*Field Studies*

*Lecture*

## Administrative Information

**Chief Academic Officer**

*Thomas E A Dale*

**Designee of chief academic officer for approval authority**

*Edward J Kaul; Robert J Klipstein*

**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**

*Spring 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 meet a 200-level requirement in the Art History Department under the new curriculum to be implemented in the Fall of 2014. Under this new curriculum, art history majors can choose which 2 200-level "gateway" courses they take, of which this will be one (previously they were required to take 201 and 202 only). The course also meets a requirement for the Material Culture Certificate. The Certificate currently stipulates 2 core course requirements, one of which is a 400-level course. The Certificate curriculum is under revision, and the proposed course will take the place of Arth/Hist/DS 464, which was one of the two core courses. The proposed course will be larger, and act as a gateway course into the Certificate, which is growing in popularity.*

**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).**

*As noted above, the proposed course would satisfy a 200-level requirement for art history and also be a required course for the Material Culture Certificate.*

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

*No*

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

## Course Content

### Describe the course content

*This course provides an introduction to material culture study, particularly the kinds of objects to be studied and the questions one can ask of objects. This class will have a varied format, with the "lecture" sessions - organized thematically by unit (with weekly topics tied to the unit theme) -- combining lectures by the Professor and other faculty and professionals in material culture with in-class and small group activities and discussions based on assigned readings. Discussion sections help students practice application of ideas in the readings and lectures, partly through in-class activities and also through field trips in and around Madison. Research skills will also be developed in discussion section through in-class exercises, mini presentations, and short paper assignments on objects of material culture. The content in the sense of the objects studied will vary across time and geography, and will vary according to the faculty member leading the course.*

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

*The course has the same title as a 400-level course taught for the last decade (Arth 464/Hist 464/DS 464), which was a core requirement in the material culture certificate program. That course teaches higher-level skills in material cultural analysis, and requires a more significant research project, and is intended for advanced undergraduate and graduate students. Demand has always been high for this course; yet because of the level and course requirements, we've kept enrollment small. Demand has grown, and we feel a broader, more introductory level class better fits our needs at this time. The content of the course may compare with the upper level course, although not precisely, since it will cover a broader temporal and geographical range (as an Introductory course). The requirements will also differ; the new course has in-class essay exams (one tied to each course theme) and a research proposal (worked on in the discussion section), as well as shorter exercises in section.*

### 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.**

*Anthropology (156)  
Folklore Program (380)  
Design Studies (359)  
History (448)*

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

*Ann Smart Martin (Art History), Anna Andrzejewski (Art History), Sissel Schroeder (Anthropology), Janet Gilmore (Landscape Architecture) and Mark Nelson (Design Studies) - rotating by semester*

**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.**

*200 level dimensions.pdf*

## Justifications

### Explain how this course contributes to strengthening your curriculum

*This will expand the offerings at our 200 level, which is part of our newly revised undergraduate curriculum. The new 200 level "gateway" courses, which rotate different semesters, are designed to better represent the range of art history and our faculty. Material Culture is a major strength in Art History (and on campus), so this course is designed to provide an Introduction to this area and allow students interested in Material Culture study an opportunity to take a course at the introductory level. It is also hoped it will build the Material Culture Certificate base.*

### Provide an estimate of the expected enrollment

*75 (with 1 T.A.)*

### 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

*3 credits for the 3 hours of in-class instructional time led by the Instructor for the course; of these 3 credits/week, 2 credits will be devoted to presentations (or "lectures") and one will be devoted to "discussion" as an entire class. The remaining credit is tied to the discussion section to go with the course, which will be led by a Teaching Assistant (from Art history), who will conduct the class through a mix of field study, group discussion, and individual mentoring of students' research.*

### If this is a variable credit course, provide rationale

### 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?

*LAS credit automatically granted because this is an L&S course*

### 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:

*H-Humanities*

## General Education Designations

### Should the course be reviewed for the general education requirement?

*No*

### Which requirements?



**DIMENSIONS OF MATERIAL CULTURE**

Art History 264 (spring 2014)

Tuesday and Thursday 1:00-2:15 pm; Conrad A. Elvehjem Building, Rm. L140

Prof. Anna Andrzejewski

**COURSE DESCRIPTION**

This course is intended as an introduction to the new and highly interdisciplinary field of material culture studies. It is intended for undergraduate students who are interested in any professional endeavor that requires training in material culture, including careers in museums, galleries, historical societies, historic preservation organizations, and academic institutions. No previous coursework or prior experience in the field of material culture or art history is assumed or required. During the semester, students will have varied opportunities to contemplate “things” – the material world to which people give meaning and which, in turn, influences their lives. The course takes the perspective that what we make, see, inhabit, eat, acquire, cherish, and discard – all are important agents of communication and part of broad social and cultural contexts.

This class will have a varied format, with the “lecture” sessions combining lectures by the Professor and other faculty and professionals in material culture with in-class and small group activities and discussions based on assigned readings. Discussion sections help students practice application of ideas in the readings and lectures, partly through in-class activities and also through field trips in and around Madison. Research skills will also be developed in discussion section through in-class exercises, mini presentations, and short paper assignments on objects of material culture. The content in the sense of the objects studied will vary across time and geography, and will vary according to the faculty member leading the course.

**COURSE OBJECTIVES**

This course had two interrelated goals. First, students will become acquainted with the field of material culture. They will learn what kinds of objects are considered in material culture studies (from small artifacts of daily life to large cultural landscapes) and how scholars and professionals from different fields and in different contexts enlist material culture in their research and activities. They will gain an appreciation for the information artifacts can provide. Second, students will gain an appreciation for the way that things help us to connect to the world, see the world in a new way, and give meaning to our lives. They will learn the kinds of questions that can be asked of objects and the kind of information that artifacts can show us. They will become familiar with (and able to distinguish between) descriptive and interpretive components of material culture study, and gain an awareness of the variety of interpretive methods used.

**COURSE REQUIREMENTS & EVALUATION**

1. (60%) In-class Essays (approximately 3-4 pages each, 15% each). At the end of each of the three thematic units, students will write an in-class essay based around the topics of that theme (reading assignments, guest speakers, and fieldtrips from section). These exams are open-note, and will ask students to respond to a thematic question distributed in class.

**2. (15%) Attendance and Participation.** A substantial percentage of your grade is based upon your attendance and participation, particularly in discussion section (10%) but also in lecture (5%). Attendance will be taken in section, though this is only part of your grade; you also will be assessed based on the extent of your participation in class activities, including (but not limited to) orally participating in discussions and group activities, as well as field trips.

At least three field trips/site visits will occur during discussion sections over the course of the semester, as they relate to the course themes. Participation will be based on attendance and participation in any activities related to the field trip. Options for field trips include:

- Helen Allen Textile Collection
- UW DesignLab
- Allen Centennial Gardens
- Madison Children's Museum
- Wisconsin Veterans Museum
- UW Special Collections.

For lectures, participation grades will be based on engagement in class small group discussions as well as discussions of readings.

**2. (10%) Field Reports** (2 - approximately 2-3 pages each). The vitality and breadth of the field is so strong that there will multiple opportunities for students to attend lectures or visit exhibitions of material culture on campus and in Madison. Thus attendance at these events, at least some of them, is considered part of the course. Students must choose two of these events and write a synopsis of each. These synopses should summarize what the student observed and learned, and most importantly, tie it to the themes, questions, and issues that have been discussed in the class. These will be due one week from the date of lecture (if a lecture) and within 2 weeks of the opening of the exhibit.

**3. (15%) Research Proposal.** Students will craft a short (4-5 page) research proposal over the course of the semester with the assistance of activities in discussion section. One week will be devoted to selecting a topic; another week will work on crafting research questions on an object; another week will help students learn how to do a literature review; and so on. This proposal (due on the last day of class) will thus be worked on throughout the semester and build on lessons in the lectures and activities in discussion section.

### **Distribution of Grading (see above for even more specific breakdowns)**

Attendance, participation, and reading presentation	15%
Synthesis Writing Assignments	60%
Attendance and Participation	10%
Research Proposal	<u>15%</u>
	100%

**Grading Scale:** The grade scale will follow the University standards: 94-100, A; 89-93, AB; 84-88, B; 79-83, BC; 74-78, C; 65-73, D, 64 and below, F. Grades are not rounded up.

### **COMMUNICATIONS INFORMATION**

The Instructor welcomes questions and is always eager to discuss any thoughts you have related to material covered in class. Please visit me during office hours or make an

appointment if you have anything you wish to discuss. Talking with me AFTER CLASS is best, as I'm usually preparing before class.

**Use of Email:** I will reply to your emails as quickly as possible; sometimes it may take a day to get a response. The more clearly you can state your question the easier it will be for us to reply. I will not—under any circumstances—discuss issues relating to your performance in the course over email out of interests in security and because of the potential for misunderstanding. This includes requests to miss an exam, or hand in a paper late. Please recognize that sending an e-mail stating that you are handing in a paper late or missing an exam DOES NOT constitute or imply our acceptance; gaining permission means discussing the issue together and reaching a mutually-accommodating solution.

**Classlists:** Classlists have been set up for the whole course and for individual sections, which will allow us to send emails to you containing information that will help you succeed in the course. Please make sure your email is current with My-UW.

## OTHER POLICIES AND IMPORTANT INFORMATION

**Attendance Policy:** You are graded on attendance and participation (15% of grade). Each student is expected to attend all class sessions. Grade penalties will begin after two absences, and failure to attend class regularly will result in a failing grade.

**Make up Policy:** Any absences due to serious medical conditions or deaths in the family must be supported by written documentation. If you are a traveling athlete, your coach must send us a letter to excuse your absence. In addition, all written work must be submitted on time—no exceptions. Your grade will be lowered by one-half letter grade per day late (A to AB, for example) until the work is handed in. No late work will be accepted after one week. Exceptions may be made only in case of medical emergencies supported by appropriate documentation. If there is a valid reason you are unable to submit work on the day it is due, you must consult with one of the instructors **BEFORE** the deadline to make arrangements. Failure to comply with this policy could result in a grade of “0” for assignment in question. PLEASE NOTE: sending an email announcing you are handing something in late is not acceptable; you need to talk to one of the instructors in person.

**Assignment Retention Policy:** You are expected to retain a copy of any assignment you complete for our class for the duration of the semester either by photocopying or saving onto a backup drive.

**Academic Integrity Policy:** All work you do in this class must be your own. The two most common types of academic dishonesty are “cheating” and “plagiarism.” *Cheating* is the act of obtaining or attempting to obtain academic work through the use of dishonest, deceptive or fraudulent acts. *Plagiarism* is representing the work of someone else as one's own and submitting it to fulfill academic requirements; this includes borrowing ideas, words, sentences or paragraphs from books and periodicals as well as from the Internet without properly citing your sources.

If you commit an act of cheating or plagiarism, there are serious repercussions; on the consequences, please see the [University of Wisconsin-Madison Disciplinary Guidelines](#) at

[http://students.wisc.edu/saja/misconduct/academic\\_misconduct.html](http://students.wisc.edu/saja/misconduct/academic_misconduct.html) If you have any questions, please speak with one of the instructors.

**Special Needs and Accommodations:** If you have special educational needs (i.e., trouble with timed written exams, or with note-taking), you should register at the McBurney center and contact us DURING THE FIRST TWO WEEKS OF CLASS to make arrangements. For help with your writing, you are encouraged to contact the [Writing Center](#), 6171 Helen C. White Hall, tel. 263-1992. In addition to one-on-one consultations, they also offer non-credit classes of one or a few sessions each, to help you with a range of writing issues.

**Lecture Hall Rules:** There is no eating or drinking allowed in the Elvehjem Building, since crumbs and spills attract bugs and bugs are attracted to paintings. PLEASE DEPOSIT ANY FOOD REMAINS IN RECEPTACLES OUTSIDE THE BUILDING OR NEAR THE ENTRANCES. Do not sit in the aisles due to fire code regulations. Please arrive to class on time. If you have to arrive late, leave early, or typically can't make it through class without a bathroom break, please enter (or exit) quietly and with minimal disruption. Also, please keep any whispering to a minimum. Switch off cell phones and other noisy electronic devices during class time. Consider whether note taking on your laptop is a distraction or a study aid. In our dim room your neighbors (and you!) may be disturbed by your email, chats, web surfing, and Facebook updates; these are not appropriate uses of our class time.

### SCHEDULE OF LECTURES\*

\*Subject to Change at Discretion of Instructors  
All changes will be announced in class and via email.

#### WEEK 1: INTRODUCTION

9/4 Introduction to the Course  
READ: The syllabus for this course

9/6 Considering Material Culture  
BRING: Piece of material culture  
READ: Jules Prown, "Mind in Matter: An Introduction to Material Culture Theory and Method," *Winterthur Portfolio*, Vol. 17, No. 1 (Spring 1982), 1-19  
Ian Woodward, "The Material as Culture: Definitions, Perspectives, Approaches," *Understanding Material Culture* (London: Sage Publications, 2007), 3-16

#### Week 2: CREATING AND CONSUMING

9/11 Creating Material Culture  
*Guest Speaker:* Tom Loeser (Art Department)  
BRING: Something you made  
READ: Richard Sennett, "Chapter 1: The Troubled Craftsman (excerpt of beginning)," *The Craftsman* (New Haven: Yale University Press, 2008), 19-27  
Tim Ingold, "On Weaving a Basket," *The Object Reader*, ed. Fiona Candlin and Raiford Guins (New York: Routledge, 2009), 80-91

9/13 Consuming Material Culture  
*Guest Speaker:* Ann Smart Martin (Art History Department)

BRING: Something you bought

READ: Ann Smart Martin, "Suckey's Looking Glass: African Americans as Consumers,"  
*Buying into the World of Goods: Early Consumers in Backcountry Virginia*, 173-193

Optional Further Reading: Ann Smart Martin, "Makers, Buyers, and Users: Consumerism as a Material Culture Framework," *Winterthur Portfolio*, Vol. 28, no. 2-3, Summer/Autumn 1993, 141-157

## THEME 1: LAND AND LANDSCAPES

### Week 3: DESIGNED LANDSCAPES

9/18 Perceiving Landscapes

Visit: Chazen Museum of Art, Exhibition and Object and Print Room

READ: Entry on "Picturesque," and choose one from "Landscape," "Beauty," "Sublime,"  
*Encyclopedia of Aesthetics*, in Oxford Art Online

9/20 Designing Suburban Life

Guest Speaker: Monica Penick (Department of Design Studies)

READ: Monica Penick, "Marketing Modernism: *House Beautiful* and the Station  
Wagon Way of Life," *Working Papers on Design*, 4 (December 2010), 1-16

### Week 4: AGRICULTURE AND FOODWAYS

9/25 Food and Food Traditions as Material Culture

Guest Speaker: Janet Gilmore (Department of Landscape Architecture and Folklore Program)

READ: Anne R. Kaplan, Marjorie A. Hoover, and Willard B. Moore, "Introduction:  
On Ethnic Foodways," in *The Taste of American Place: A Reader on Regional and  
Ethnic Foods*, Barbara G. Shortridge and James R. Shortridge, eds. (Lanham, Md:  
Rowman & Littlefield, 1998), 121-33

Lynne M. Dearborn, "Socio-spatial Patterns of Acculturation: Examining Hmong Habitation  
in Milwaukee's North-side Neighborhoods," *Buildings & Landscapes: Journal of the  
Vernacular Architecture Forum*, Vol. 15 (Fall 2008), 58-77

9/27 Material Cultures of Milk

Guest Speaker: Daniel Einstein (Historic and Cultural Resources Manager, Division of  
Facilities Planning and Management)

Visit: Dairy Barn and Babcock Dairy

READ: Edward Janus, "The Gospel of the Cow," *Creating Dairyland: How Caring for Cows  
Saved our Soil, Created our Landscape, Brought Prosperity to our State, and Still Shapes  
our Way of Life in Wisconsin* (Madison: Wisconsin Historical Society Press, 2011), 2-5  
Deborah Valenze, "Introduction" and "The ABC's of Milk," *Milk: A Local and Global History*  
(New Haven: Yale University Press), 1-9 and 235-252.

### Week 4: DESIGN AND PLANNING

10/2 The City and Suburb as Material Culture

Guest Speaker: Anna Andrejewski (Art History Department) and Dave Cieslewicz (Former

Madison Mayor and Current Community Director, Greenbush-Vilas Revitalization Project)

READ: Kenneth T. Jackson, "Introduction," *Crabgrass Frontier: The Suburbanization of the United States* (New York and Oxford: Oxford U. Press, 1984), 3-11

Jane Jacobs, *Death and Life of Great American Cities* (New York: Vintage, 1961); Chapter 11, "The Need for Concentration" and "Some Myths about Diversity," 200-221 and 222-38

10/4 IN-CLASS ESSAY #1

## **THEME 2: BODIES**

Week 6: FASHION AND CLOTHING

10/9 Foundations and Underpinnings

*Guest Speaker:* Leslie Bellais (Curator of Costume & Textiles, Wisconsin Historical Society)

*Visit:* Wisconsin Historical Society, Auditorium, First Floor

READ: Leigh Summers, Chapter 1, "Elegance, Comfort, Durability! Class, Contours, and Corsetry," in *Bound to Please: A History of the Victorian Corset* (Berg Publishers, 2003), 8-36.

Optional Further Reading: Chapter 2: "Bosoms and Bustles," from Patricia Anderson, *When Passion Reigned: Sex and the Victorians* (Basic Books, 1996): 25-48

Chapter 1: "Steel and Whalebone: Fashioning the Aristocratic Body," and Chapter 2: "Art and Nature: Corset Controversies of the Nineteenth Century," from Valerie Steele, *The Corset: A Cultural History* (Yale UP, 2003)

10/11 Tactility and Consumption

*Guest Speaker:* Joann Peck (School of Business)

READ: Joann Peck and Jennifer Wiggins, "It Just Feels Good: Customers' Affective Response to Touch and Its Influence on Persuasion," *Journal of Marketing* 70 (Oct. 2006): 56-69

Joann Peck and Suzanne B. Shu, "The Effect of Mere Touch on Perceived Ownership," *Journal of Consumer Research* 36, no. 3 (Oct. 2009): 434-447.

Week 7: SKIN AND MUSCLES

10/16 Historical Tattooing

*Guest Speaker:* Amelia Klem Osterud (Academic Librarian, Carroll University)

READ: Amelia Klem Osterud, "Introduction and Their Place in Tattoo History," *The Tattooed Lady* (Golden, Colo.: Speck Press, 2009), 1-32

*Miss Nora Hildebrandt, The Tattooed Lady*, pamphlet, ca. 1882

10/18 Exercise and Bodybuilding

READ: Roberta J. Park, "Healthy, Moral, and Strong: Educational Views of Exercise and Athletics in Nineteenth-Century America," in *Fitness in American Culture: Images of Health, Sport, and the Body, 1830-1940*, ed. Kathryn Grover (UMass Press/ Margaret Woodbury Strong Museum, 1989): 123-160

Optional Further Reading: Carolyn de la Peña, *The Body Electric: How Strange Machines Built the Modern American* (NYU Press, 2003)

Week 8: JEWELRY AND ADORNMENT

10/23 Hairwork in the United States

*Guest Speaker, Beverly Gordon, Professor Emeritus, Design Studies*

READ: Helen Sheumaker, "That Curious Art," *Love Entwined: The Curious History of Hairwork in America* (Univ. Penn Press, 2007), 1-29

10/25 Beads and Bodies in Africa

*Guest Speaker: Henry Drewal (Art History Department)*

READ: Henry Drewal, "Yorùbá Bead Work in Africa: Introduction," *Beads, Body, and Soul: Art and Light in the Yorùbá Universe* (Los Angeles: UCLA Fowler Museum of Cultural History, 1998), 13-31

Week 9: HALLOWEEN

10/30 Halloween

READ: Nicholas Rogers, "Coming Over: Halloween in North America" and "Razor in the Apple: The Struggle for a Safe and Sane Halloween, c. 1920-1990," *Halloween: From Pagan Ritual to Party Night*, (Oxford University Press, 2002), 49-77 and 78-102

11/1 IN-CLASS ESSAY #2

**THEME 3: TECHNOLOGIES**Week 10: COMMUNICATION

11/6 The Material Culture of Voting

READ: William M. Evan, "Voting Technology, Political Institutions, Legal Institutions, and Civil Society: A Study of the Hypothesis of Cultural Lag in Reverse," *History and Technology* 20, no. 2 (Jun. 2004): 165-183.

Paul Lucier, "An Object Lesson: Chads," *Social Studies of Science* 31, no. 3 (Jun. 2001): 444-446.

J. Winegar, "Of Chadors and Purple Fingers: US Visual Media Coverage of the 2005 Iraqi Elections," *Feminist Media Studies* 2005

SKIM:

Douglas W. Jones, "A Brief Illustrated History of Voting," (Computer Science dept)

<http://homepage.cs.uiowa.edu/~jones/voting/pictures/>

and

[http://www.pbs.org/newshour/vote2004/primaries/sr\\_technology\\_history.html](http://www.pbs.org/newshour/vote2004/primaries/sr_technology_history.html)

11/8 The Material Culture of the Book

*Guest Speaker: Robin Rider (History of Science & Special Collections Librarian)*

Visit: Special Collections, UW-Madison Libraries, Memorial Library

READ: TBA

Week 11: EDUCATION

11/13 Teaching Art History

Possible screening of excerpt from Paige Sarlin, *The Last Slide Projector* (2006)

READ: Robert S. Nelson, "The Slide Lecture, or the Work of Art 'History' in the Age of Mechanical Reproduction," *Critical Inquiry* 26, no. 3 (Spring 2000): 414-434  
"Digital Culture and the Practices of Art and Art History," *The Art Bulletin* 79, no. 2 (Jun. 1997): 187-216

11/15 Teaching Science

*Guest Speaker:* Jim Lattis (Director, UW Space Place and Faculty Associate, Astronomy Department)

READ: David Aubin, Charlotte Bigg, and H. Otto Sibum, "Introduction," *The Heavens on Earth: Observatories and Astronomy in Nineteenth-century Science and Culture* (Duke University Press, 2010), 1-32

SKIM: "Wisconsin at the Frontiers of Astronomy: A History of Innovation and Exploration," *Wisconsin Blue Book* (2009-2010), 101-187

Optional Further Reading: Charlotte Bigg, "Staging the Heavens: Astrophysics and Popular Astronomy in the Late Nineteenth Century" *The Heavens on Earth*, 305-324

Week 12: THANKSGIVING

11/20 Thanksgiving

READ: Andrew F. Smith, "The First Thanksgiving," *Gastronomica: The Journal of Food and Culture*, Vol. 3, No. 4 (Fall 2003): 79-85

Elizabeth Pleck, "The Making of the Domestic Occasion: The History of Thanksgiving the US," *Journal of Social History* 32, no. 4 (Summer 1999): 773-790

**11/22 THANKSGIVING – NO CLASS**

**THEME 4: PLAY**

Week 13: MATERIAL CULTURE OF CHILDHOOD

11/27 IN-CLASS ESSAY #3

11/29 Children's playgrounds and design

*Guest speaker:* Prof. Sam Dennis, Landscape Architecture

READ: Susan C. Solomon, "History, 1960-1995," in *American Playgrounds: Revitalizing Community Space* (University Press of New England, 2005), 43-91.

Roy Kozlovsky, "Adventure Playgrounds and Postwar Reconstruction," in Marta Gutman and Ning de Coninck-Smith, eds., *Designing Modern Childhoods: History, Space, and the Material Culture of Children*. Rutgers University Press, 2008, 171 -90.

Entries on children's toys and games from *Material Culture in America: Understanding Everyday Life*, pp. 90-91, 207-208.

Week 14: ADULT "PLAY"

12/4 "Immaterial Culture: Virtual Objects and Environments"



*Guest Speaker:* Prof. Mark Nelson, Design Studies  
READ: TBA

12/6 MATERIAL CULTURE OF 21<sup>ST</sup> CENTURY ENTERTAINMENT  
READ: TBA – reality TV, virtual reality games, Tough Mudder, etc.

Week 15: PRESENTATIONS

12/11 In-class Essay #4

12/13 WRAP UP – **Research Proposal due in class**

## Course Change Proposal

**Subject** Food Science (390)

**Status** Under Review by School/College

**Proposer** Richard W Hartel

### Basic Information

**Current course number**

*301*

**Current course title**

*Introduction to the Science and Technology of Food*

**Current published course description**

*Introduction to the science and the technology of food manufacture. Course covers the basic chemical, physical and microbiological properties of food and manipulation of these properties in the manufacture of food products.*

**Chief academic officer of this unit**

*Scott A Rankin*

**Designee of chief academic officer for approval authority**

*Jenny M Schroeder; Judy A Smith*

**Currently crosslisted with**

**What is the primary divisional affiliation of the course?**

*Biological Sciences*

**When will this change go into effect?**

*Summer 2013*

## Basic Changes

Will the subject change?

*No*

**Current subject**

*Food Science (390)*

**Proposed subject**

Will the course number change?

*No*

**Current course number**

*301*

**Proposed course number**

**Is this an honors course?**

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

Will the title change?

*No*

**Current title**

*Introduction to the Science and Technology of Food*

**Proposed title (max. 100 chars.)**

**Proposed transcript title (max. 30 chars.)**

Will the crosslistings change?

*No*

**Current crosslistings**

**Proposed crosslistings**

Will the "repeatability" of the course change?

*No*

**Current repeatability**

**Proposed repeatability**

## Catalog Changes

**Will the credits change?**

No

**Current minimum credits**

3

**Current maximum credits**

3

**Proposed minimum credits**

**Proposed maximum credits**

**Will the grading system change?**

No

**Current grading system**

**Proposed grading system**

**Will the published course description change?**

No

**Current course description**

*Introduction to the science and the technology of food manufacture. Course covers the basic chemical, physical and microbiological properties of food and manipulation of these properties in the manufacture of food products.*

**Proposed course description**

**Will the prerequisites change?**

Yes

**Current prerequisites and other requirements**

*Declared major in Food Science, Nutritional Sciences (Pre-Dietetics, Dietetics, International Agriculture and Natural Resources) or Biological Systems Engineering; and algebra, 1 sem of general chem, and 1 sem biology, or con reg, or cons inst*

**Proposed prerequisites and other requirements**

*Declared major in Food Science, Nutritional Sciences (Dietetics, International Agriculture and Natural Resources) or Biological Systems Engineering; and algebra, 1 sem of general chem, and 1 sem biology, or con reg, or cons inst*

## Designation Changes

Will the Liberal Arts and Sciences (LAS) designation change?

*No*

What change is needed?

What is the rationale for seeking LAS credit?

Will the level of the course change for L&S attributes?

*No*

Current level:

Proposed level:

Will the L&S breadth requirement change?

*No*

Current breadth:

Proposed breadth:

Will the General Education Requirement change?

*No*

Current GER:

Proposed GER

## Additional Information

**Explain the relationship and importance of the proposed change to existing or future programs (i.e., degrees, majors and certificates)**

*This change is at the request of Nutritional Sciences to limit enrollment in FS 301 to those students who have attained Dietetics status, not to those in Predietetics.*

**Are any of these programs outside your academic unit?**

*Yes*

**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.**

*Nutritional Sciences (694)*

**Specify which requirement(s) this change affects, 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 unit. The proposal will be sent to the academic units that support those subjects for review.**

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

*None*

**Is there a relationship to courses outside your subject?**

*No*

**Indicate the outside affected subject(s). The proposal will be sent to the academic units that support those subjects for review.**

**Will any courses be discontinued as a result of this change?**

*No*

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

## Justification Changes

### Explain the need for the change

*FS 301 is the introductory course for both Dietetics and Food Science students. Due to increasing enrollment, both departments recommend that FS 301 is open only to students who have already attained Dietetics (ADI) status, and not to predietetics (PDI) students.*

### Additional comments (optional)

### Attach a syllabus

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

*Ntambi NutriSci.pdf*



November 19, 2012

Dr. Scott Rankin, Chair  
Department of Food Science

RE: Pre-requisite for FS 301 and FS 437

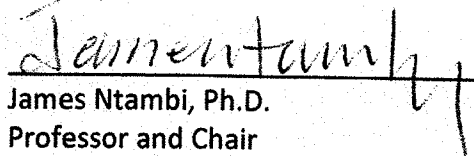
Dear Scott,

I am providing this letter on behalf of the Nutritional Sciences Department to support the Food Science Department for the following course changes:

- 1) Change the pre-requisite requirement of FS 301 from PDI to ADI
- 2) Add the pre-requisite requirement of ADI to FS437

Please contact me if you have any questions.

Best,

  
James Ntambi, Ph.D.  
Professor and Chair  
Department of Nutritional Sciences

Department of Nutritional Sciences  
College of Agricultural and Life Sciences

1415 Linden Drive ■ Madison, WI 53706-1571

Tel: (608) 262-2727 ■ Fax: (608) 262-5860 ■ Website: [www.nutrisci.wisc.edu](http://www.nutrisci.wisc.edu)



Major	Current Curriculum	Proposed Change
Biochemistry	Pchem requirement: 5 cr. (Chem 565 +563)	Pchem requirement: 4 cr. (Chem 565 [still recommended] or Chem 561, and Chem 563)
C&E Soc.	The curriculum sheet currently says, "C&E SOC 500 preferred, but students can get permission to count C&ES SOC 573 (S) or 617 (S) in conjunction with C&E SOO 699" under Capstone.	Delete "preferred, but students can get permission to count C&ES SOC 573 (S) or 617 (S) in conjunction with C&E SOO 699"
Dietetics (see attached curriculum sheet)		delete MHR 300 and FS 537  add Gen Bus 310 and Gen Bus 311  NS 520 (3 cr.) elim Group 2 communication requirements (LSC 100 and LSC 212)  adding PHS 370, Med. Hist. 213, and NS 203 to Recommended Electives
Environmental Sciences		adding Geog 475 (US Environmental Issues: Policy and Politics) to Env. Policy and Social Perspectives, Core AND focused electives
Forest Science	Conservation requirement options (Envir St 361, F&W Ecol 360, 565,651, Geog 339) do not double count with elective track courses	These courses should now be able to be double counted.
Horticulture		add Hort 375, sect 001 (Plants and Human Wellbeing) to Horticulture Breadth requirement
Nutritional Sciences		adding PHS 370, Med. Hist. 213, and NS 203 to Recommended Electives
Plant Pathology		Adding Stats 371 to math Adding Chem 341/2 to chem Adding PI Path 590 (capstone)
Soil Science	reorganization of Specialization courses in Turf specialization (see attached curriculum sheet)	



These requirements were last reviewed by the CALS Curriculum Committee in 2010-11 and must undergo their next review by 2014-15.

**Curriculum Sheet Dietetics  
Degree Nutritional  
Sciences Major**

**CALS Graduation Eligibility Requirements**

- \_\_\_\_\_ Minimum of 120 degree credits
- \_\_\_\_\_ Minimum 2.0 Cumulative GPA
- \_\_\_\_\_ Last 30 Credits in Residence

**Advisor/Advisee Notes:**

**UW Requirements**

Courses may not double count within university requirements, but courses counted toward university requirements may also be used to satisfy a college requirement &/or a major requirement.

- \_\_\_\_\_ **Communication Part A (2-3 cr.)** Designated "a" in the Course Guide.
- \_\_\_\_\_ **Communication Part B (2-3 cr.)** Designated "b" in the Course Guide.
- \_\_\_\_\_ **Quantitative Reasoning Part A (3 cr.)** Designated "q" in the Course Guide.
- \_\_\_\_\_ **Quantitative Reasoning Part B (3 cr.)** Designated "r" in the Course Guide.
- \_\_\_\_\_ **Ethnic Studies (3 cr.)** Designated "e" in the Course Guide.
- \_\_\_\_\_ **Humanities/Literature/Arts (6 cr.)** Designated H, L, X, or Z in the Course Guide.
- \_\_\_\_\_ **Social Sciences (3 cr.)** Designated S, W, Y, or Z in the Course Guide.

**CALS Requirements**

Courses may not double count within college requirements, but courses counted toward college requirements may also be used to satisfy a university requirement &/or a major requirement.

- \_\_\_\_\_ **First-Year Seminar (1 cr.)** See DARS or <http://www.newstudent.wisc.edu/practices/CALS.php> for full list.  
Students who transfer into CALS after freshman year and continuing students who move to the B.S. degree should consult with Undergrad Programs & Services (116 Ag Hall) regarding completion of this requirement.
- \_\_\_\_\_ **International Studies (3 cr.)** List of eligible International Studies courses can be found at: <http://www.cals.wisc.edu/students/undergraduate-programs/curriculum-information/cals-international-studies-courses/>  
Must complete 3 credits of International Studies coursework.
- \_\_\_\_\_ **Physical Science Fundamentals (3 cr.)** Must complete one General Chemistry course from the following list: CHEM 103, 108, 109. Consult major requirements prior to selecting.
- \_\_\_\_\_ **Biological Science (5 cr.)** Designated B or Y in the Course Guide.
- \_\_\_\_\_ **Additional Science (3 cr.)** Designated B, P, N, W, X, or Y in the Course Guide.
- \_\_\_\_\_ **Science Breadth (3 cr.)** Designated B, P, N, S, W, X, or Y in the Course Guide.

**Possible Overlaps Between UW, CALS, & Major Requirements**

Communication Part A  
Communication Part B  
Quantitative Reasoning Part A  
Quantitative Reasoning Part B  
Social Sciences  
Physical Science Fundamentals  
Biological Science  
Additional Science  
Science Breadth

**Admission to Dietetics Degree Program**

**Students will have PDI classification until admission to the Dietetics Degree Program (ADI classification). Departmental approval required.**

To be admitted to the B.S. Dietetics program, the following requirements must be met effective Fall 2009:

1. A minimum overall cumulative GPA of 2.800
2. A minimum mean GPA of 2.800 in the following required\* courses:  
Chem 103 and 104, or 109  
Zoology 101 and 102, or 151  
Nutritional Sciences 332  
Physiology 335  
Food Science 301  
Psychology 202 or statistics (Psych 210, Soc 360, Stat 201, 301, or 371)  
or a communication course listed under the Dietetics Degree Requirements, below.

\*Any transfer course from another university that will be used to meet the above required courses must be included in the GPA calculation. If the same course is taken more than once, only the grade from the last time the course was taken will be used in the GPA calculation.

\*\*Effective Fall 2012, Microbio 101 or 303 is no longer a requirement for admission to the Dietetics Degree Program. It is still a requirement for the Dietetics Degree.

**Dietetics Degree Requirements**

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 elsewhere.

**Communication** (5-6 cr.)

One group required:

**Group 1**

\_\_\_\_One oral course from: COM ARTS 100 (a), 105, 262 (b, H), 266 (b, S), 272 (b, S), L SC COM 360 (b)

\_\_\_\_One written course from: L SC COM 111 (b), 212 (b), ENGLISH 201 (b), GEN BUS 300, E P D 397 (b), BIOLOGY/BOTANY/ZOOLOGY 152 (b, B)

**Deleted: Group 2¶**  
\_\_\_\_L SC COM 100 (a) and 212 (b)¶

Mathematics and Statistics (6-9 cr.)

\_\_\_\_\_ MATH 112 (q) or 114 (q) or may be satisfied by placement exam (q)

*Note that placement into MATH 114 does not guarantee that credit has been earned for MATH 112.*

\_\_\_\_\_ One course from: PSYCH 210 (r), SOC 360 (r), STAT 201 (r), 301 (r), 371 (r)

Chemistry (11-15 cr.)

\_\_\_\_\_ CHEM 103 (P) and 104 (P) or CHEM 109 (r, P)

\_\_\_\_\_ CHEM 341 (P) or 343 (P)

\_\_\_\_\_ BMOLCHEM 314 (P) or 503 (B) or BIOCHEM 501 (P)

Biology (10 cr.)

\_\_\_\_\_ ZOOLOGY 101 (B) and 102 (B) or ZOOLOGY 151 (B)

\_\_\_\_\_ MICROBIO 101 (B) and 102 (B) or MICROBIO 303 (B) and 304 (B)

(Consult advisor about combining MICROBIO 303 with MICROBIO 102.)

Foundation (13-14 cr.)

\_\_\_\_\_ PHYSIOL 335 (B)

\_\_\_\_\_ PSYCH 202 (S)

\_\_\_\_\_ One course from: AGRONOMY 379 (B), INTER-HE 427, 428, 515, ED PSYCH 301 (S)

Deleted: \_\_M H R 300 (S)¶

-----Gen Bus 310

-----Gen Bus 311

Comment [NGK1]: I'm not sure where these courses are supposed to go.

Core (24 cr.)

\_\_\_\_\_ FOOD SCI 301

\_\_\_\_\_ FOOD SCI 437

\_\_\_\_\_ FOOD SCI 438

\_\_\_\_\_ NUTR SCI 200

\_\_\_\_\_ NUTR SCI 332 (B)

\_\_\_\_\_ NUTR SCI 431 (B)

\_\_\_\_\_ BIOCHEM/NUTR SCI 510 (B)

\_\_\_\_\_ NUTR SCI 631 (B)

Deleted: \_\_FOOD SCI 537¶

Capstone (3 cr.)

\_\_\_\_\_ NUTR SCI 500 and 520

Recommended Dietetics Electives

ACCT I S 300 (r), ANATOMY 328 (B), COM ARTS 368 (S), COUN PSY 650 (S), C&E SOC 222 (S), FOOD SCI 324 (B), 325 (B), 410 (B), 412, GEN&WS 103, KINES 314 (B), MARKETING 300 (S),

Med Hist 213, NURSING 105 (S), 600, 746, NUTR SCI 203, 350 (B), 540 (B), 621, 635, 672,

PATH 404 (B), PHM SCI 401 (B), PHS 370 POP HLTH 575 (B), SOC 531 (S)

Deleted: ¶

**Nutritional Sciences Major      Bachelor of Science-Dietetics Degree**  
**SAMPLE Four-Year Plan**

Last Updated: June 2011

This Sample Four-Year Plan is a tool to assist you and your advisor in planning your academic career.  
 Use it along with the Curriculum Sheet for your program, your DARS report, and the Course Guide.

	Fall Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits	Spring Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits
Year 1	CHEM 103 <sup>1</sup> Communications <sup>2</sup> MATH 112 or 114 ZOOLOGY 101 or ANTHRO 104 <sup>3</sup> Electives	4 3 3-5 3 2 <b>15-17</b>			CHEM 104 PSYCH 202 ZOOLOGY 101 or ANTHRO 104 <sup>3</sup> ZOOLOGY 102 FIRST-YEAR SEMINAR	5 3 3 2 1 <b>14</b>		
Year 2	NUTR SCI 200 <sup>4</sup> MICROBIO 101 or 303 MICROBIO 102 or 304 CHEM 341 <sup>4</sup> FOOD SCI 301 Communications <sup>2</sup>	1 3 2 3 3 2-3 <b>14-15</b>			NUTR SCI 332 PHYSIOL 335 Statistics Electives	3 5 3-4 4 <b>15-16</b>		
Year 3	MHR 300 (prior auth. req'd) BMOLCHEM 314 <sup>4</sup> or BIOCHEM 501 Electives	3 3 9-10 <b>15-16</b>			NUTR SCI 431 <sup>5</sup> NUTR SCI 510 Education Techniques <sup>6</sup> Electives	3 3 3 6-7 <b>15-16</b>		
Year 4	NUTR SCI 631 <sup>4</sup> FOOD SCI 437 <sup>4</sup> FOOD SCI 438 <sup>4</sup> NUTR SCI 500 Electives	4 3 1 1 6-7 <b>15-16</b>			FOOD SCI 537 <sup>5</sup> NUTR SCI 520 Electives	3 2 10-11 <b>15-16</b>		

**Notes:**

- See Curriculum Sheet for recommended supporting courses
- Students interested in pursuing the Dietetics program must first complete specific prerequisite courses (listed in **bold** type above) and must achieve the necessary grade point average criteria. Consult <http://www.nutrisci.wisc.edu> for specific information on admission requirements and application procedure.

<sup>1</sup> Math 112 is a prerequisite

<sup>2</sup> Require both UW (COMM-A & COMM-B) and Dietetics Communication requirements (see curriculum sheet)

<sup>3</sup> ANTHRO 104 fulfills both the Ethnic Studies and International Studies requirements

<sup>4</sup> Offered only first semester

<sup>5</sup> Offered only second semester

<sup>6</sup> ED PSYCH 301 or INTER-HE 427, 428, 515, or AGRONOMY 379 (one course required)



COLLEGE OF  
**AGRICULTURAL & LIFE SCIENCES**  
University of Wisconsin-Madison

This Curriculum Sheet is a DRAFT to be used for advising purposes only. A final version will be available on June 1, 2011.

**Curriculum Sheet  
Bachelor of Science Degree  
Soil Science Major**

**CALS Graduation Eligibility Requirements**

- \_\_\_\_\_ **120 credits** Minimum number of degree credits necessary for graduation.
- \_\_\_\_\_ **Minimum 2.0 Cumulative GPA**
- \_\_\_\_\_ **Last 30 Credits in Residence**

**Advisor/Advisee Notes:**

**UW Requirements**

Courses may not double count within university requirements, but courses counted toward university requirements may also be used to satisfy a college requirement &/or a major requirement.

- \_\_\_\_\_ **Communication Part A (2-3 cr.)** Designated "a" in the Course Guide.
- \_\_\_\_\_ **Communication Part B (2-3 cr.)** Designated "b" in the Course Guide.
- \_\_\_\_\_ **Quantitative Reasoning Part A (3 cr.)** Designated "q" in the Course Guide.
- \_\_\_\_\_ **Quantitative Reasoning Part B (3 cr.)** Designated "r" in the Course Guide.
- \_\_\_\_\_ **Ethnic Studies (3 cr.)** Designated "e" in the Course Guide.
- \_\_\_\_\_ **Humanities/Literature/Arts (6 cr.)** Designated H, L, X, or Z in the Course Guide.
- \_\_\_\_\_ **Social Sciences (3 cr.)** Designated S, W, Y, or Z in the Course Guide.

**CALS Requirements**

Courses may not double count within college requirements, but courses counted toward college requirements may also be used to satisfy a university requirement &/or a major requirement.

- \_\_\_\_\_ **First-Year Seminar (1 cr.)** See DARS for full list.  
Students who transfer into CALS after freshman year and continuing students who move to the B.S. degree should consult with Undergrad Programs & Services (116 Ag Hall) regarding completion of this requirement.
- \_\_\_\_\_ **International Studies (3 cr.)** List of eligible International Studies courses can be found at:  
<http://www.cals.wisc.edu/students/undergraduate-programs/curriculum-information/cals-international-studies-courses/>  
Must complete 3 credits of International Studies coursework.
- \_\_\_\_\_ **Physical Science Fundamentals (3 cr.)** Must complete one General Chemistry course from the following list: CHEM 103, 108, 109. Consult major requirements prior to selecting.
- \_\_\_\_\_ **Biological Science (5 cr.)** Designated B or Y in the Course Guide.
- \_\_\_\_\_ **Additional Science (3 cr.)** Designated B, P, N, W, X, or Y in the Course Guide.
- \_\_\_\_\_ **Science Breadth (3 cr.)** Designated B, P, N, S, W, X, or Y in the Course Guide.

**Possible Overlaps Between UW, CALS, & Major Requirements**

Communication Part B  
Quantitative Reasoning Part A  
Quantitative Reasoning Part B  
Ethnic Studies  
Humanities/Literature/Arts  
Social Sciences  
Physical Science Fundamentals  
Biological Science  
Additional Science  
Science Breadth

**Soil Science Major Requirements**

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 elsewhere.

**Mathematics and Statistics (8-10 cr.)**

\_\_\_\_ MATH 112 (q) or MATH 114 (q) or MATH 171\* (q)  
\_\_\_\_ MATH 210 (r) or 211 (r) or 217\* (r) or 221 (r) or 222 (r) or STAT 224 (r) or 301 (r) or 371 (r) or 541 (r) or 571 (r)

\*Note that MATH 171 & 217 must be taken as a sequence.

**Chemistry (9 cr.)**

\_\_\_\_ One of the following sets:  
\_\_\_\_ CHEM 103 (P) and 104 (P)  
\_\_\_\_ CHEM 109 (r, P) and one of the following five options: CHEM 311 (P), 327 (P), 329 (P), [341 (P) and 342 (P)], or 565 (P)

**Biology (10 cr.)**

\_\_\_\_ One of the following sets:  
\_\_\_\_ BOTANY 130\* (B) and ZOOLOGY 101 (B) and 102 (B) (recommended set)  
\_\_\_\_ BIOLOGY/BOTANY/ZOOLOGY 151 (B) and 152 (b, B)  
\_\_\_\_ BIOCORE 301 (B) and 302 (b, B) and 303 (B) and 304 (b, B)

\*BOTANY 130 is required by the Turf and Grounds Track.

**Core (15 cr.)**

\_\_\_\_ SOIL SCI 301 (P)  
\_\_\_\_ Minimum of 3 courses from: SOIL SCI [321 (P) or 621 (P)], [322 (P) or 622 (P)], [323 (B) or 425 or 523 (P)], 325 (P), or [326 (P) or 626]  
\_\_\_\_ Additional courses to complete 15 credits in soils coursework (Core section): SOIL SCI 324 (P), 332, 333, 334, 370, 399 or 699 (max. 3 credits), 451 (P), 524, 532 (P), 601, 623, 625, 631 (B), 695, ENVIR ST/F&W ECOL 301 (P), ENVIR ST/GEOG 377 (P)

**Specialization**

Must complete 1 specialization (see details on pages that follow)

**Capstone (3-4 cr.)**

\_\_\_\_ SOIL SCI 499\* or ENVIR ST 461 or 575 (P) or F&W ECOL 652 (r, B)

\*SOIL SCI 499 capstone required for Turf and Grounds Track.

Consult advisor to request permission to substitute another course for the Capstone requirement. Course must meet CALS Capstone Characteristics described in the Undergraduate Catalog and be approved by advisor and 116 Ag Hall.

### **Science Specialization Requirements**

Must complete 4 common requirements and one sub-specialization chosen from:

Physical Systems or Environmental Sciences or Biosciences

#### **Physics (8-10 cr.)**

\_\_\_\_\_ One of the following sets:

PHYSICS 103 (r, P) and 104 (P)

PHYSICS 201 (r, P) and 202 (P)

PHYSICS 207 (r, P) and 208 (P)

#### **Math/Chemistry (4-5 cr.)**

\_\_\_\_\_ MATH 211 (r) or 221 (r) or CHEM 311 (P) or 327 (P) or 329 (P) or 565 (P)

#### **Chemistry/Physics (??? cr.)**

\_\_\_\_\_ One group required:

CHEM 341 (P) and 342 (P)

or

CHEM 343 (P) and 344 (P) and 345 (P)

or

5 advanced PHYSICS credits from: PHYSICS 205 (P), 241 (P), 265 (P), 307 (P), 308 (P), 311 (P), 321 (P), 322 (P), 325 (P), 407 (P), 463 (P), 501, 623 (P), 625 (P)

#### **Physical Systems Sub-Specialization Courses (5 courses, ??? cr.)\***

\*Some courses may fulfill Gen Ed requirements.

\_\_\_\_\_ ATM OCN 100 (P) or 101 (P) or CIV ENGR 320 (P) or GEOG 321 (P) or G L E/GEOSCI

627

\_\_\_\_\_ COMP SCI 310

\_\_\_\_\_ ENVIR ST/GEOG 127 (P) or GEOSCI 104

\_\_\_\_\_ MATH 221 (r)

\_\_\_\_\_ STAT 224 (r) or 301 (r)

#### **Environmental Sciences Sub-Specialization Courses (9 courses, ??? cr.)**

\_\_\_\_\_ CHEM 327 (P)

\_\_\_\_\_ MATH 222 (r)

\_\_\_\_\_ BOTANY/F&W ECOL/ZOOLOGY 460 (r, B)

\_\_\_\_\_ A A E/ECON/ENVIR ST 343 (S) or ENVIR ST/M&ENVTOX/PL PATH 368 (S)

\_\_\_\_\_ ENVIR ST/GEOG 377 (P) or ENVIR ST/LAND ARC/SOIL SCI 695

\_\_\_\_\_ AGRONOMY/ATM OCN/SOIL SCI 532 (P) or F&W ECOL 451 (P) or G L E/GEOSCI 627 or

CIV ENGR 423

\_\_\_\_\_ CIV ENGR 500 (P) or 502 or CIV ENGR/M&ENVTOX/SOIL SCI 631 (B) or CHEM 561 (P)

or 565 (P)

\_\_\_\_\_ CIV ENGR 320 (P)

\_\_\_\_\_ SOIL SCI 399 or 699

#### **Biosciences Sub-Specialization Courses (4 requirements, ??? cr.)\***

\*Some courses may fulfill Gen Ed requirements.

\_\_\_\_\_ BIOCHEM 501 (P)

\_\_\_\_\_ GENETICS 466 (B) or 545 or BOTANY 563 (B) or MICROBIO 375

\_\_\_\_\_ One of the following groups:

MICROBIO 101 (B) and 102 (B)

MICROBIO 303 (B) and 304 (B)

BOTANY 330 (b, B) or 332 (B)

\_\_\_\_\_ BOTANY 240 (B) or 260 (B) or 460 (r, B) or F&W ECOL 550 (B)



#### **Environmental Systems Specialization Requirements**

##### Ecology (2-4 cr.)

\_\_\_\_ BIOCORE 333 (B) or ENTOM 342 (B) or F&W ECOL 110 (B) or 455 (B) or 460 (r, B) or 550 (B) or LAND ARC 361 (B)

##### Environmental Systems (?? cr.)

\_\_\_\_ BOTANY 130 (B) or BIOLOGY/BOTANY/ZOOLOGY 151 (B) and 152 (B)  
\_\_\_\_ BOTANY/F&W ECOL/ZOOLOGY 460 (r, B)  
\_\_\_\_ ENVIR ST 112 (S)  
\_\_\_\_ ENVIR ST 113 (H)  
\_\_\_\_ ENVIR ST 126 (B)  
\_\_\_\_ ENVIR ST/GEOG 127 (P) or GEOSCI 104  
\_\_\_\_ ENVIR ST 461 or 575 (P) or A A E/ENVIR ST/F&W ECOL 652 (r, B)

#### **Soil Informatics Specialization Requirements**

##### **Specialization Courses (20-24 cr.)** (must choose SOIL SCI 325 as major option)

\_\_\_\_ GEOG 320 (P) or 325 (P) or 326 (P)  
\_\_\_\_ GEOG 370 (P)  
\_\_\_\_ GEOG 377 (P)  
\_\_\_\_ GEOG 576 (P) or 577 (P) or 578 (P) or SOIL SCI 695 or URB R PL 622  
\_\_\_\_ F&W ECOL 375 [Intro to Remote Sensing]  
\_\_\_\_ F&W ECOL 375 [Intermediate Remote Sensing] or [Digital Image Processing]  
\_\_\_\_ BSE 201  
\_\_\_\_ GEOSCI 444 (P)

#### **Field Crops Specialization Requirements**

##### Physical Science (3 cr.)

\_\_\_\_ 3 credits from: ATM OCN 100 (P) or 101 (P), SOIL SCI 132 (P), GEOG 120 (P) or 127 (P), GEOSCI 100 (P)(3) or 104

##### Ag and Applied Econ or Accounting or Personnel Management (6 cr.)

\_\_\_\_ 6 credits from: ACCT I S 100, 211, 300 (r), 301, 329, A A E 215 (S), 320, 322 (S), 323 (S), 419, 420, 421 (S), 474 (S), 577 (S), M H R 300 (S), 305 (S), 420, 610, 611, 612, OTM 330 (S)

##### Specialization Courses (17-18 cr.)\*\*

\*\*Some courses may fulfill Gen Ed requirements.

\_\_\_\_ AGRONOMY 100 (B) or HORT 120 (B)  
\_\_\_\_ AGRONOMY 300 (B) or 302 (B) or HORT 345  
\_\_\_\_ AGRONOMY/HORT/SOILS 326 (P)  
\_\_\_\_ AGRONOMY/SOIL SCI 334 or SOIL SCI 333  
\_\_\_\_ PL PATH 300 (B)  
\_\_\_\_ ENTOM 351 (B)

### Turf and Grounds Specialization Requirements

#### Physical Science (3 cr.)

\_\_\_\_ 3 credits from: ATM OCN 100 (P) or 101 (P), SOIL SCI 132 (P), GEOG 120 (P) or 127 (P), GEOSCI 100 (P)(3) or 104

#### Specialization Courses (32 cr.)

\_\_\_\_ ACCT I S 300 (r)  
\_\_\_\_ BOTANY 130 (counts toward Soil Science Major Biology requirement, above)  
\_\_\_\_ BSE 201  
\_\_\_\_ BSE 243 (P)  
\_\_\_\_ BOTANY/F&W ECOL 402 (B)  
\_\_\_\_ HORT 120 (B)  
\_\_\_\_ HORT 261  
\_\_\_\_ M H R 300 (S) or 305 (S)  
\_\_\_\_ PL PATH 300 (B)  
\_\_\_\_ HORT/SOIL SCI 332  
\_\_\_\_ ENTOM 351 (B)

#### Proposed:

#### Physical Science – no changes (3 cr)

#### Required Specialization Courses – complete all (20 cr):

\_\_\_\_ Acct 300  
\_\_\_\_ MHR 300 or 305  
\_\_\_\_ Bot 130  
\_\_\_\_ Hort 261  
\_\_\_\_ Hort/Soils 332  
\_\_\_\_ Plant Path 300

#### Specialization Courses – complete 7 credits

\_\_\_\_ BSE 201  
\_\_\_\_ BSE 243  
\_\_\_\_ Bot 402  
\_\_\_\_ Hort 120  
\_\_\_\_ Hort 262  
\_\_\_\_ Hort 461  
\_\_\_\_ Entom 351  
\_\_\_\_ BSE 216  
\_\_\_\_ BSE 218

**Comment [DJS1]:** Many of the courses on this list are not taught every year. (BSE 243, 216, 218, Bot 402, Hort 461, Hort 262), which is a primary driver of the requested change.