A g e n d a
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)
___ 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 9th 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)
Proposer: Janet C Batzli
Status: Under Review by School/College

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 Borcherding; 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
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
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)
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.

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

**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:

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

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Date</th>
<th>Time</th>
<th>Emphasis</th>
<th>Points</th>
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<tbody>
<tr>
<td>Mid-term Exam I</td>
<td>Monday, Oct. 8</td>
<td>7:15-9:15 pm</td>
<td>Lectures 1-14</td>
<td>90</td>
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<tr>
<td>Mid-term Exam II</td>
<td>Tuesday, Nov. 6</td>
<td>7:15-9:15 pm</td>
<td>Lectures 15-27 and comprehensive</td>
<td>120</td>
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<tr>
<td>Final Exam</td>
<td>Thursday, Dec. 20</td>
<td>2:45 pm</td>
<td>Lectures 28-43 and comprehensive</td>
<td>140</td>
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<tr>
<td>Problem Sets</td>
<td>Sept. 14, Sept. 28, Oct 12, Oct. 19, Nov. 2, Nov. 19, Nov. 30, Dec. 7</td>
<td>Due before Lecture starts</td>
<td>105*</td>
<td></td>
</tr>
<tr>
<td>Lecture Activities</td>
<td>Weekly</td>
<td></td>
<td>In lecture, varies</td>
<td>60</td>
</tr>
<tr>
<td>Library Workshop</td>
<td>Week of Sept. 10</td>
<td></td>
<td>Varies, sign up</td>
<td>10</td>
</tr>
<tr>
<td>Mini-Papers</td>
<td>Oct. 1, &amp; Oct. 31</td>
<td>Due before Lecture starts</td>
<td>80</td>
<td></td>
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<tr>
<td>Evolution Activity</td>
<td>Dec. 13</td>
<td></td>
<td>Due in Discussion</td>
<td>40</td>
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<tr>
<td>Field/Lab Activity</td>
<td>Nov. 21</td>
<td>Due before Lecture starts</td>
<td>10</td>
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<tr>
<td>Participation</td>
<td></td>
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<td>25</td>
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<td><strong>Total</strong></td>
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<td>90</td>
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<td>80</td>
<td>B</td>
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<td>70</td>
<td>C</td>
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<td>60</td>
<td>D</td>
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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 Borcherding 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 Borcherding (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 Borcherding can be found in the Biocore office, 345 Noland Hall. Grading questions can be taken up with Dr. Howell (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](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), Diana Cowdrey (cowdrey@wisc.edu), and Jeremie Sauve (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). 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 Borcherding (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), 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) 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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
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<tbody>
<tr>
<td>1</td>
<td>Sept. 5</td>
<td>Howell</td>
<td>The Big Picture: Evolution, Ecology, and Genetics</td>
</tr>
<tr>
<td>2</td>
<td>Sept. 7</td>
<td>Howell</td>
<td>Introduction to Ecology; Adaptation of Organisms to the Physical Environment #mini-lecture 1</td>
</tr>
</tbody>
</table>

Assignments due:
1. Mini-lecture #1 before class meeting 2.
2. Mini-paper assigned – Pick topics by September 12

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Sept. 10</td>
<td>Howell</td>
<td>Adaptation of Organisms to the Physical Environment; Ponds and Prairies *mini-lecture 2</td>
</tr>
<tr>
<td>4</td>
<td>Sept. 12</td>
<td>Howell</td>
<td>Adaptations of Organisms to Biota: Populations: Size, Pattern, Demography</td>
</tr>
<tr>
<td>5</td>
<td>Sept. 14</td>
<td>Howell</td>
<td>Population Dynamics: Growth Models*mini-lecture 3</td>
</tr>
</tbody>
</table>

Assignments due:
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 before lecture.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Sept. 17</td>
<td>Howell</td>
<td>Populations and Conservation – Rare Species, Exotic Species, Metapopulations. Managing Populations</td>
</tr>
<tr>
<td>7</td>
<td>Sept. 19</td>
<td>Howell</td>
<td>Adaptations of Organisms to Biota; Communities: Organization and Diversity. Competition</td>
</tr>
<tr>
<td>8</td>
<td>Sept. 21</td>
<td>Howell</td>
<td>Communities: Predator-Prey Interactions. Mutualisms</td>
</tr>
</tbody>
</table>

Assignments due:
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.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Sept. 24</td>
<td>Howell</td>
<td>Disturbance, Succession, &quot;Stability&quot;</td>
</tr>
<tr>
<td>10</td>
<td>Sept. 26</td>
<td>Howell</td>
<td>Communities and Conservation: Restoration</td>
</tr>
<tr>
<td>11</td>
<td>Sept. 28</td>
<td>Howell</td>
<td>Ecosystems: Food Webs and Energy Flow</td>
</tr>
</tbody>
</table>

Assignments due:
1. Problem Set #2 due Friday, September 28 before lecture.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Oct. 1</td>
<td>Howell</td>
<td>Ecosystems: Nutrient Cycles*mini-lecture 4</td>
</tr>
<tr>
<td>13</td>
<td>Oct. 3</td>
<td>Howell</td>
<td>Ecosystems: Nutrient Cycles</td>
</tr>
<tr>
<td>14</td>
<td>Oct. 5</td>
<td>Howell</td>
<td>Global Ecology</td>
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</table>

Assignments due:
1. Mini-lecture #4 before class meeting 12
2. Revised mini-paper #1 due at beginning of lecture on Oct. 1
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Oct. 8</td>
<td>Simon</td>
<td>Sources of Variation</td>
</tr>
<tr>
<td>16</td>
<td>Oct. 10</td>
<td>Simon</td>
<td>Life Cycles</td>
</tr>
<tr>
<td>17</td>
<td>Oct. 12</td>
<td>Simon</td>
<td>Mitosis and Meiosis* mini-lecture 5</td>
</tr>
</tbody>
</table>

First mini-paper returned with TA comments—useful for 2nd mini-paper

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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Oct. 15</td>
<td>Simon</td>
<td>Gregor Mendel and the Birth of Genetics</td>
</tr>
<tr>
<td>19</td>
<td>Oct. 17</td>
<td>Simon</td>
<td>Probability and Testing Genetic Hypotheses* mini-lecture 6</td>
</tr>
<tr>
<td>20</td>
<td>Oct. 19</td>
<td>Simon</td>
<td>Gene Action and Interaction</td>
</tr>
</tbody>
</table>

**Assignments due:**
1. Problem Set #4 due Friday, Oct. 19 before lecture
2. Mini-lecture #6 before class meeting 19

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<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Oct. 22</td>
<td>Simon</td>
<td>The Chromosome Theory of Heredity</td>
</tr>
<tr>
<td>22</td>
<td>Oct. 24</td>
<td>Simon</td>
<td>Genetic Recombination and Linkage</td>
</tr>
<tr>
<td>23</td>
<td>Oct. 26</td>
<td>Simon</td>
<td>Crossing Over and Genetic Distance* mini-lecture 7</td>
</tr>
</tbody>
</table>

**Assignments due:**
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

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<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Oct. 29</td>
<td>Simon</td>
<td>Chromosome Structure, Extrachromosomal Inheritance and Transposable Elements</td>
</tr>
<tr>
<td>25</td>
<td>Oct. 31</td>
<td>Simon</td>
<td>Chromosome Number and Ploidy</td>
</tr>
<tr>
<td>26</td>
<td>Nov. 2</td>
<td>Simon</td>
<td>Inheritance of Complex Traits</td>
</tr>
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</table>

**Assignments due:**
1. Revised mini-paper #2 due Wednesday, Oct. 31 before lecture
2. Problem Set #5 due Friday, November 2 before lecture

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<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Nov. 5</td>
<td>Simon</td>
<td>Quantitative Genetics* mini-lecture 8</td>
</tr>
</tbody>
</table>

---

**Exam Review: To Be Announced**

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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Nov. 7</td>
<td>Goldman</td>
<td>Charles Darwin, Man of Curiosity</td>
</tr>
<tr>
<td>29</td>
<td>Nov. 9</td>
<td>Goldman</td>
<td>Charles Darwin, Reluctant Prophet</td>
</tr>
</tbody>
</table>

**Assignments due:**
1. 1. Mini-lecture 8 before class meeting 27

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<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Nov. 12</td>
<td>Loewe</td>
<td>Population Genetics: Science of the Future Despite a Century of History</td>
</tr>
<tr>
<td>31</td>
<td>Nov. 14</td>
<td>Loewe</td>
<td>The Five Factors of Evolution</td>
</tr>
<tr>
<td>32</td>
<td>Nov. 16</td>
<td>Loewe</td>
<td>Fitness, Selection and Adaptive Landscapes</td>
</tr>
</tbody>
</table>

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*mini-lecture 5
*mini-lecture 6
*mini-lecture 7
*mini-lecture 8
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Nov. 19</td>
<td>Loewe</td>
<td>Mutation, Selection and Drift at a Single Locus</td>
</tr>
<tr>
<td>34</td>
<td>Nov. 21</td>
<td>Loewe</td>
<td>Multi-Locus Population Genetics and Molecular Evolution</td>
</tr>
<tr>
<td><strong>Assignments due:</strong></td>
<td></td>
<td></td>
<td>1. Problem Set #6 due Monday, Nov. 19 before lecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Field Activity write up, due Nov. 21 before lecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Thanksgiving Recess, Nov. 22 - Nov. 25</em></td>
</tr>
<tr>
<td>35</td>
<td>Nov. 26</td>
<td>Loewe</td>
<td>Mechanism of Speciation</td>
</tr>
<tr>
<td>36</td>
<td>Nov. 28</td>
<td>Goldman</td>
<td>Tree Thinking and Other Branches of Knowledge</td>
</tr>
<tr>
<td>37</td>
<td>Nov. 30</td>
<td>Goldman</td>
<td>Rapid Evolution in Agriculture, Medicine, and Environment</td>
</tr>
<tr>
<td><strong>Assignments due:</strong></td>
<td></td>
<td></td>
<td>1. Problem Set #7 due Friday, Nov. 30 before lecture</td>
</tr>
<tr>
<td>38</td>
<td>Dec.  3</td>
<td>Goldman</td>
<td>Evolution of Behavior, Brain, Emotions, and Humanity</td>
</tr>
<tr>
<td>39</td>
<td>Dec.  5</td>
<td>Goldman</td>
<td>Evolution of Diversity: Prokaryotes and Eukaryotes</td>
</tr>
<tr>
<td>40</td>
<td>Dec.  7</td>
<td>Goldman</td>
<td>Evolution of Diversity: Protists and Fungi</td>
</tr>
<tr>
<td><strong>Assignments due:</strong></td>
<td></td>
<td></td>
<td>1. Problem Set #8 due Friday, Dec. 7 before lecture</td>
</tr>
<tr>
<td>41</td>
<td>Dec. 10</td>
<td>Goldman</td>
<td>Evolution of Diversity: Animals</td>
</tr>
<tr>
<td>42</td>
<td>Dec. 12</td>
<td>Goldman</td>
<td>Evolution of Diversity: Plants</td>
</tr>
<tr>
<td>43</td>
<td>Dec. 14</td>
<td>All</td>
<td>Integration Lecture</td>
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<tr>
<td><strong>Assignments due:</strong></td>
<td></td>
<td></td>
<td>1. Evolution Activity due Dec. 13 in Discussion</td>
</tr>
</tbody>
</table>

*Exam Review to be announced*

*Final Exam Thursday, December 20 – 2:45 -4:45 PM*
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
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361 Noland Hall
262-6189

**Collaborating Librarian**

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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
zthrockmorton@wisc.edu
524 Noland Hall
262-7431
- Javier Velasco
velasco@wisc.edu
524 Noland Hall
262-7431

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- 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 Borcherding,
  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)  
**Proposer**  Janet C Batzli  
**Status**  Under Review by School/College

### 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 Borcherding; 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*
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Will the subject change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current subject</strong></td>
<td>Biology Core Curriculum (206)</td>
</tr>
<tr>
<td><strong>Proposed subject</strong></td>
<td></td>
</tr>
<tr>
<td>Will the course number change?</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Current course number</strong></td>
<td>303</td>
</tr>
<tr>
<td><strong>Proposed course number</strong></td>
<td>383</td>
</tr>
<tr>
<td>Is this an honors course?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?</td>
<td>No</td>
</tr>
<tr>
<td>Will the title change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current title</strong></td>
<td>Cellular Biology</td>
</tr>
<tr>
<td><strong>Proposed title (max. 100 chars.)</strong></td>
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<tr>
<td><strong>Proposed transcript title (max. 30 chars.)</strong></td>
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<tr>
<td>Will the crosslistings change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current crosslistings</strong></td>
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<tr>
<td><strong>Proposed crosslistings</strong></td>
<td></td>
</tr>
<tr>
<td>Will the &quot;repeatability&quot; of the course change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current repeatability</strong></td>
<td></td>
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</table>
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
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
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)
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 Borcherding 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 Borcherding (elborche@wisc.edu), Biocore’s program administrator.

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>Place</th>
<th>TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>9:55 R</td>
<td>379 Noland</td>
<td>Kimberly Dessoffy</td>
</tr>
<tr>
<td>302</td>
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<td>303</td>
<td>12:05 R</td>
<td>379 Noland</td>
<td>Kristina Blanke</td>
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<tr>
<td>304</td>
<td>12:05 R</td>
<td>553 Noland</td>
<td>Kimberly Dessoffy</td>
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<tr>
<td>305</td>
<td>1:20 R</td>
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<tr>
<td>306</td>
<td>2:25 R</td>
<td>379 Noland</td>
<td>Sheryl Walker</td>
</tr>
<tr>
<td>308</td>
<td>4:35 R</td>
<td>379 Noland</td>
<td>Sheryl Walker</td>
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</table>
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 that 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:


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 8th 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 x 100 + 1 x 120 = 320 points), the **best 11 of 12 problem sets** (11 x 10 points = 110 points), **best 11 of 12 quizzes in discussion sections** (11 x 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.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Points</th>
<th>Date</th>
<th>Time</th>
<th>Emphasis of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>100</td>
<td>Feb. 26</td>
<td>7:15 PM</td>
<td>Unit 1  (lectures 1-15)</td>
</tr>
<tr>
<td>Exam 2</td>
<td>100</td>
<td>April 9</td>
<td>7:15 PM</td>
<td>Unit 2  (lectures 16-30)</td>
</tr>
<tr>
<td>Exam 3</td>
<td>120</td>
<td>May 13</td>
<td>2:45 PM</td>
<td>Unit 3  (lectures 31-44) and comprehensive</td>
</tr>
</tbody>
</table>

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 Borcherding (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 Borcherding, 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:

<table>
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<tr>
<th>Letter Grade</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>472.5-525 (90-100%)</td>
</tr>
<tr>
<td>B</td>
<td>420-472.4 (80-89%)</td>
</tr>
<tr>
<td>C</td>
<td>367.5-419 (70-79%)</td>
</tr>
<tr>
<td>D</td>
<td>315-367.4 (60-69%)</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 314 (&lt; 60%)</td>
</tr>
</tbody>
</table>

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 (jdhardin@wisc.edu) and for Biocore 304, Dr. Michelle Harris (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) 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

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

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td>16</td>
<td>2/27</td>
<td>Hardin</td>
<td>DNA: Introduction</td>
</tr>
<tr>
<td>17</td>
<td>3/01</td>
<td>Hardin</td>
<td>DNA: Chromatin and Replication</td>
</tr>
<tr>
<td>18</td>
<td>3/04</td>
<td>Hardin</td>
<td>DNA: Replication (cont) and telomeres</td>
</tr>
<tr>
<td>19</td>
<td>3/06</td>
<td>Hardin</td>
<td>DNA to RNA: Transcription</td>
</tr>
<tr>
<td>20</td>
<td>3/08</td>
<td>Hardin</td>
<td>RNA Processing and RNAi</td>
</tr>
<tr>
<td>21</td>
<td>3/11</td>
<td>Hardin</td>
<td>RNA to Protein: Translation and the Genetic Code</td>
</tr>
<tr>
<td>22</td>
<td>3/13</td>
<td>Hardin</td>
<td>Protein sorting</td>
</tr>
<tr>
<td>23</td>
<td>3/15</td>
<td>Hardin</td>
<td>Mutation and DNA repair</td>
</tr>
<tr>
<td>24</td>
<td>3/18</td>
<td>Hardin</td>
<td>Genetic Variation</td>
</tr>
<tr>
<td>25</td>
<td>3/20</td>
<td>Hardin</td>
<td>Manipulating DNA</td>
</tr>
<tr>
<td>26</td>
<td>3/22</td>
<td>Hardin</td>
<td>Genomics</td>
</tr>
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**SPRING BREAK RECESS (March 23 – March 31)**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Lecturer</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td>27</td>
<td>4/01</td>
<td>Hardin</td>
<td>Prokaryotic Gene Regulation</td>
</tr>
<tr>
<td>28</td>
<td>4/03</td>
<td>Hardin</td>
<td>Eukaryotic Gene Regulation</td>
</tr>
<tr>
<td>29</td>
<td>4/05</td>
<td>Hardin</td>
<td>Eukaryotic Gene Regulation (cont)</td>
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<tr>
<td>30</td>
<td>4/08</td>
<td>Hardin</td>
<td>Epigenetics and Genetic Integration</td>
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**Review session:** Monday, April 8 at 4:30 pm  
**Exam 2 (lectures 16-30):** Tuesday, April 9 at 7:15 PM
Unit 3: Cell Signaling, Movement, and the Flow of Intracellular Messengers (Dr. Dent)

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

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
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Seth McGee                samegee@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

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

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Janet Batzli (Assoc. Dir) jcbatzli@wisc.edu   363 Noland Hall  263-1594
Carol Borcherding (Prog. Mgr.) clborche@wisc.edu  345 Noland Hall  265-2870
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 a 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
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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.
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Course Change Proposal

Subject: Biology Core Curriculum (206)
Proposer: Janet C Batzli
Status: Under Review by School/College

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 Borcherding; 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
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the subject change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current subject</strong></td>
<td><strong>Biology Core Curriculum (206)</strong></td>
</tr>
<tr>
<td><strong>Proposed subject</strong></td>
<td></td>
</tr>
<tr>
<td>Will the course number change?</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Current course number</strong></td>
<td><strong>323</strong></td>
</tr>
<tr>
<td><strong>Proposed course number</strong></td>
<td><strong>485</strong></td>
</tr>
<tr>
<td>Is this an honors course?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?</td>
<td>No</td>
</tr>
<tr>
<td>Will the title change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current title</strong></td>
<td><strong>Organismal Biology</strong></td>
</tr>
<tr>
<td><strong>Proposed title (max. 100 chars.)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Proposed transcript title (max. 30 chars.)</strong></td>
<td></td>
</tr>
<tr>
<td>Will the crosslistings change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current crosslistings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Proposed crosslistings</strong></td>
<td></td>
</tr>
<tr>
<td>Will the &quot;repeatability&quot; of the course change?</td>
<td>No</td>
</tr>
<tr>
<td><strong>Current repeatability</strong></td>
<td></td>
</tr>
</tbody>
</table>
**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 consultation 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)
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 (O₂ & CO₂) 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** (2nd 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** (8th 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

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>TA</th>
</tr>
</thead>
</table>
| Biocore 323 lecture | meets at 9:30 TR in room 168 Noland Hall. **Biocore 323 discussion** meets on Mondays in room 379 Noland Hall (see sections at right). To receive credit for graded work in discussion, you must attend the section for which you are registered. **
| 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 |
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.

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

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.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.0-100</td>
<td>A</td>
</tr>
<tr>
<td>80.0-89.9</td>
<td>B</td>
</tr>
<tr>
<td>70.0-79.9</td>
<td>C</td>
</tr>
<tr>
<td>60.0-69.9</td>
<td>D</td>
</tr>
</tbody>
</table>

Please contact Carol Borcherding 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.

8/31/12
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  6151 WIMR  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  ebradbury@wisc.edu  319 Birge Hall
Bryan Krause  bmkrause@wisc.edu  4620 Medical Sciences Center  263-6662

**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 Borcherding  clborche@wisc.edu  345 Noland Hall  265-2870
Administrator
Seth McGee  samcgee@wisc.edu  361 Noland Hall  262-6189
Lab Manager
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## Biocore 323: Organismal Biology Fall 2012

<table>
<thead>
<tr>
<th>Lecture#-Day</th>
<th>Date</th>
<th>Instructor</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Unit 1 - Animal Control Systems</strong></td>
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</tr>
<tr>
<td>1-T</td>
<td>Sept. 4</td>
<td>Harris/Girard</td>
<td>Course Introduction; key physiological concepts</td>
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<tr>
<td>2-R</td>
<td>Sept. 6</td>
<td>Girard</td>
<td>Neurobiology 1: Membrane Potential</td>
<td>Sherwood et al. Chapter 3</td>
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<tr>
<td>M</td>
<td>Sept. 10</td>
<td>Discussion</td>
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<tr>
<td>3-T</td>
<td>Sept. 11</td>
<td>Girard</td>
<td>Neurobiology 2: Action Potential</td>
<td>Sherwood et al. Chapter 4</td>
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<td>Sept. 13</td>
<td>Girard</td>
<td>Neurobiology 3: Synapses &amp; Neurotransmission</td>
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<td>Sept. 17</td>
<td>Discussion</td>
<td></td>
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<tr>
<td>5-T</td>
<td>Sept. 18</td>
<td>Girard</td>
<td>Neurobiology 4: Nervous System Design</td>
<td>Sherwood et al. Chapter 5</td>
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<td>6-R</td>
<td>Sept. 20</td>
<td>Girard</td>
<td>*Neurobiology 5: Development, Learning, and Discussion</td>
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<tr>
<td>M</td>
<td>Sept. 24</td>
<td>Discussion</td>
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<td>7-T</td>
<td>Sept. 25</td>
<td>Alarid</td>
<td>Endocrine System: General Principles of Endocrinology</td>
<td>Sherwood et al. Chapter 7</td>
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<tr>
<td>8-R</td>
<td>Sept. 27</td>
<td>Alarid</td>
<td>Endocrine System: Hypothalamic-Pituitary and Axis Control Systems</td>
<td>Sherwood et al. Chapter 7</td>
</tr>
<tr>
<td>M</td>
<td>Oct. 1</td>
<td>Discussion</td>
<td></td>
<td></td>
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<tr>
<td>9-T</td>
<td>Oct. 2</td>
<td>Alarid</td>
<td>Endocrine System: Hormonal Control of Reproduction</td>
<td>Sherwood et al. Chapter 16</td>
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<tr>
<td>10-R</td>
<td>Oct. 4</td>
<td>Alarid</td>
<td>*Endocrine System: Dual Hormone Control System</td>
<td>Sherwood et al. Chapter 7</td>
</tr>
<tr>
<td>M</td>
<td>Oct. 8</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Unit 2 – Animal Organ Systems</strong></td>
<td></td>
</tr>
<tr>
<td>11-T</td>
<td>Oct. 9</td>
<td>Girard</td>
<td>Digestion 1: Anatomy and Absorption</td>
<td>Sherwood et al. Chapter 14</td>
</tr>
<tr>
<td>12-R</td>
<td>Oct. 11</td>
<td>Girard</td>
<td>Digestion 2: Control and Comparative Function</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Oct. 15</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-R</td>
<td>Oct. 18</td>
<td>Girard</td>
<td>*Respiratory 2: Gas Exchange and Control of Breathing</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Oct. 22</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-T</td>
<td>Oct. 23</td>
<td>Branchaw</td>
<td>CV System 1</td>
<td></td>
</tr>
<tr>
<td>16-R</td>
<td>Oct. 25</td>
<td>Branchaw</td>
<td>CV System 2</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Oct. 29</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-T</td>
<td>Oct. 30</td>
<td>Branchaw</td>
<td>CV System 3</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Lecture</td>
<td>Instructor</td>
<td>Topic</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>18-R</td>
<td>Nov. 1</td>
<td>Branchaw</td>
<td>*Osmoregulation 1</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Nov. 5</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-T</td>
<td>Nov. 6</td>
<td>Branchaw</td>
<td>Osmoregulation 2</td>
<td></td>
</tr>
<tr>
<td>20-R</td>
<td>Nov. 8</td>
<td>Branchaw</td>
<td>*Osmoregulation 3</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Nov. 12</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-T</td>
<td>Nov. 13</td>
<td>Branchaw</td>
<td>Integrative Example: Regulation of blood pressure</td>
<td></td>
</tr>
</tbody>
</table>

**Unit 3 - Plant Physiology**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Instructor</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-R</td>
<td>Nov. 15</td>
<td>Kaeppler</td>
<td>Introduction, Plant form and function</td>
</tr>
<tr>
<td>M</td>
<td>Nov. 19</td>
<td>Discussion</td>
<td><strong>Mini-exam 5: lectures 17–21</strong></td>
</tr>
<tr>
<td>23-T</td>
<td>Nov. 20</td>
<td>Kaeppler</td>
<td>Plant transport systems</td>
</tr>
</tbody>
</table>

**Thanksgiving Recess (Nov 22 – 25)**

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

* graded in-class group problem

**Textbooks:**

- McGraw-Hill hybrid textbook: Brooker Biology & Molles Ecology excerpts
Course Change Proposal

Subject  Biology Core Curriculum (206)
Proposer Janet C Batzli
Status Under Review by School/College

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 Borcherding; 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
<table>
<thead>
<tr>
<th>Basic Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the subject change?</td>
</tr>
<tr>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

  | 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** |

<p>| Current repeatability |</p>
<table>
<thead>
<tr>
<th>Proposed repeatability</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Catalog Changes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Will the credits change?</strong></td>
</tr>
<tr>
<td><em>No</em></td>
</tr>
<tr>
<td><strong>Current minimum credits</strong></td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td><strong>Current maximum credits</strong></td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td><strong>Proposed minimum credits</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Proposed maximum credits</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Will the grading system change?</strong></td>
</tr>
<tr>
<td><em>No</em></td>
</tr>
<tr>
<td><strong>Current grading system</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Proposed grading system</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Will the published course description change?</strong></td>
</tr>
<tr>
<td><em>Yes</em></td>
</tr>
<tr>
<td><strong>Current course description</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>Proposed course description</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>Will the prerequisites change?</strong></td>
</tr>
<tr>
<td><em>Yes</em></td>
</tr>
<tr>
<td><strong>Current prerequisites and other requirements</strong></td>
</tr>
<tr>
<td>Biocore 323 or con reg</td>
</tr>
<tr>
<td><strong>Proposed prerequisites and other requirements</strong></td>
</tr>
<tr>
<td>Biocore 485 (or Biocore 323 previous to Fall 2014) or con reg</td>
</tr>
</tbody>
</table>
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
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
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)
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lab Activity OR Discussion Activity</th>
<th>Assignment Type</th>
<th>Weight (%)</th>
</tr>
</thead>
</table>
| 1    | 9/4 - 7 | Intro to Biocore 324 lab course: course info, teamwork & experimental design expectations  
Intro to Unit 1: Animal Physiology  
Jigsaw: human model system |                |            |
| 2    | 9/10 - 14 | Writing exercise: Biorationale/Implications |                |            |
| 2    | 9/10 - 14 | Writing exercise: rubric expectations  
Finish intro to Animal Physiology |                |            |
| 3    | 9/17 - 21 | Refining Unit 1 project; prepare PPT proposal slides  
Peer review of biorationale & methods |                |            |
| 3    | 9/17 - 21 | Informal PPT presentation of Unit 1 research plan  
Unit 1 Biorationale & Methods due Friday Sept. 21  
(323 mini exam 1 Sept. 17th) | Team           | √           |
|      |         |          | Individ     | 4           |
| 4    | 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    | 9/24 - 28 | Unit 1 pilot studies  
Writing exercise: peer review expectations  
Unit 1 Proposal paper assigned, students choose peer review partners |                |            |
| 5    | 10/1 - 5 | Peer review Unit 1 proposal paper & pre-stats analysis page | Individ     | 2           |
| 5    | 10/1 - 5 | Unit 1 data collection  
UTA’s: “PPT Presentation Do’s and Don’ts”  
Unit 1 proposal paper (8%) + peer review + author’s response + pre-stats analysis page due Friday Oct. 5  
(323 mini exam 2 Oct. 1st) | Individ     | 8           |
| 6    | 10/8 - 12 | Expanding Unit 1 project; prepare PPT proposal slides |                |            |
|      | 10/8 - 12 | Informal PPT presentations: preliminary results + additional physiological dependent variable(s) | Team         | √           |
| 7    | 10/15 - 19 | Expanded Unit 1 study: pilot studies/data collection  
Stats exercise: ANOVA (with worksheet) |                |            |
|      | 10/15 - 19 | Expanded Unit 1 study: pilot studies/data collection  
Unit 1 Revised Proposal paper assigned, students choose peer review partners  
(323 mini exam 3 Oct. 15th) |                |            |
<p>| 8    | 10/22 - 26 | Peer review Unit 1 revised proposal paper | Individ     | 2           |</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>Date(s)</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>10/29</td>
<td>Mid-semester feedback evaluation</td>
<td>Writing exercise: Discussion/Assign reading</td>
</tr>
<tr>
<td></td>
<td>11/2</td>
<td>Complete expanded Unit 1 study data collection</td>
<td>(323 mini exam 4 Oct. 29th)</td>
</tr>
<tr>
<td>9</td>
<td>11/5-9</td>
<td>Teams finalize PPT slides &amp; practice Unit 1 presentations with uTAs</td>
<td>Writing exercise: review primary literature paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Team formal PPT presentations of Unit 1 projects</td>
<td>Unit 1 paper/proposal assigned; students choose peer review partners</td>
</tr>
<tr>
<td></td>
<td>11/12-16</td>
<td>Peer review Unit 1 paper/proposal</td>
<td>Individ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intro to Unit 2: Plant Physiology</td>
<td>Unit 1 paper OR proposal (15%) + peer review + author’s response + GEA evaluation due Friday Nov. 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No labs meet - Happy Thanksgiving!</td>
<td>(323 mini exam 5 Nov. 19th)</td>
</tr>
<tr>
<td></td>
<td>11/26-30</td>
<td>Group work time (optional peer review of Unit 2 proposal papers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/3-7</td>
<td>Unit 2 pilot studies &amp; data collection</td>
<td>Unit 2 proposal paper due Friday Nov. 30th</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unit 2 data collection/analysis</td>
<td>(323 mini exam 6 Dec. 3rd)</td>
</tr>
<tr>
<td></td>
<td>12/10-14</td>
<td>Teams finalize PPT slides &amp; practice Unit 2 presentations with uTAs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Team formal PPT presentations of Unit 2 projects</td>
<td>Peer review of Unit 2 papers</td>
</tr>
<tr>
<td></td>
<td>12/10-14</td>
<td>Unit 2 final paper OR revised proposal + peer review + author’s response + GEA form due Dec. 17th</td>
<td>(323 mini-exam 7 Dec. 18th)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Team &amp; Class Participation</td>
<td>Individ</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Final Assignment %</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89.9</td>
<td>B</td>
</tr>
<tr>
<td>70-79.9</td>
<td>C</td>
</tr>
<tr>
<td>60-69.9</td>
<td>D</td>
</tr>
</tbody>
</table>
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 Borcherding; 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
<table>
<thead>
<tr>
<th>Basic Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Will the subject change?</strong></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Current subject</strong></td>
</tr>
<tr>
<td><em>Biology Core Curriculum (206)</em></td>
</tr>
<tr>
<td><strong>Proposed subject</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Will the course number change?</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td><strong>Current course number</strong></td>
</tr>
<tr>
<td>333</td>
</tr>
<tr>
<td><strong>Proposed course number</strong></td>
</tr>
<tr>
<td>587</td>
</tr>
<tr>
<td><strong>Is this an honors course?</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td><strong>Is this an individual instruction course such as directed study, independent study, research or thesis (i.e., a course with no group instruction)?</strong></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Will the title change?</strong></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Current title</strong></td>
</tr>
<tr>
<td><em>Biological Interactions</em></td>
</tr>
<tr>
<td><strong>Proposed title (max. 100 chars.)</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Proposed transcript title (max. 30 chars.)</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Will the crosslistings change?</strong></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Current crosslistings</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Proposed crosslistings</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Will the &quot;repeatability&quot; of the course change?</strong></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Current repeatability</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
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:**
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
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)
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**


The papers and study guides that will serve as the main texts for the course will be available online ([http://learnuw.wisc.edu](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 online 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
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.
## Biocore 333: Biological Interactions
### Class Schedule
#### Spring 2012

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

<table>
<thead>
<tr>
<th>Subject</th>
<th>Genetics (412)</th>
<th>Status</th>
<th>Under Review by School/College</th>
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</thead>
<tbody>
<tr>
<td>Proposer</td>
<td>Francisco J Pelegri</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Will the credits change?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current minimum credits</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Current maximum credits</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Proposed minimum credits</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Proposed maximum credits</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Will the grading system change?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current grading system</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Proposed grading system</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Will the published course description change?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current course description</strong></td>
<td>Problems related to higher plants, including polyploid inheritance, self-incompatibility, cytoplasmic inheritance, mutable alleles, complex loci, genome analysis, recombination and mutagenesis.</td>
</tr>
<tr>
<td><strong>Proposed course description</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Will the prerequisites change?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current prerequisites and other requirements</strong></td>
<td>Genetics 561</td>
</tr>
<tr>
<td><strong>Proposed prerequisites and other requirements</strong></td>
<td>Genetics 466 or equivalent</td>
</tr>
</tbody>
</table>
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:

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

**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.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Subtopic</th>
<th>Instructor</th>
<th>Reading/Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep  5</td>
<td></td>
<td>Sex Determination</td>
<td>Masson</td>
<td>Wang et al. (2012) PNAS 109:13710-13715</td>
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<tr>
<td>Sep  12</td>
<td>Self Incompatibility and Crossing Barriers II; Apomixis</td>
<td>Masson</td>
<td>Marimuthu et al. (2011) Science 331: 876</td>
<td></td>
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<tr>
<td>Sep  17</td>
<td>Linkage Analysis</td>
<td>Recombination</td>
<td>Masson</td>
<td>Toyotah et al. (2011). The Plant Journal 65, 589–599</td>
</tr>
<tr>
<td>Sep  19</td>
<td></td>
<td>Linkage from F2 Data</td>
<td>Masson</td>
<td>Problems (posted on learn@uw)</td>
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<tr>
<td>Sep  24</td>
<td></td>
<td>Linkage from F2 Data: ML Approach</td>
<td>Masson</td>
<td>Problems (posted on learn@uw)</td>
</tr>
<tr>
<td>Oct  10</td>
<td>Transposable Elements II</td>
<td>Masson</td>
<td>Homework 1 questions handed out</td>
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<tr>
<td>Oct  15</td>
<td>Evolution of Chromosomes: Synteny</td>
<td>Masson</td>
<td>Homework 1 Due</td>
<td></td>
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<tr>
<td>Oct  17</td>
<td>Evolution of Chromosomes: Meiotic Drive</td>
<td>Masson</td>
<td>Homework 2 Questions Handed Out</td>
<td></td>
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<tr>
<td>Oct  24</td>
<td>Polyploidy II</td>
<td>Havy</td>
<td></td>
<td></td>
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<tr>
<td>Oct  31</td>
<td>Organellar Genetics I</td>
<td>Havy</td>
<td>Homework 2 Questions Handed Out</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Instructor</td>
<td>Reading/Notes</td>
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<tr>
<td>Nov 7</td>
<td>Organellar Genetics III</td>
<td>Havey</td>
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<tr>
<td></td>
<td>Transcriptional</td>
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<tr>
<td></td>
<td>Posttranscriptional</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Nov 28</td>
<td>Thanksgiving Recess</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec 3</td>
<td>Experimental Approaches</td>
<td>Masson</td>
<td>Austin R et al. (2011). <em>Plant J</em> 67: 715-25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mosaic Analysis</td>
<td></td>
<td><em>Homework 3 Questions Handed Out</em></td>
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</tbody>
</table>

*Homework 2 Due*

*Homework 3 Questions Handed Out*

*Homework 3 Due*
New Course Proposal

Subject  Genetics (412)  Status  Under Review by School/College
Proposer  Christopher D Day

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.
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?
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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900 or more</td>
</tr>
<tr>
<td>AB</td>
<td>850-899</td>
</tr>
<tr>
<td>B</td>
<td>800-849</td>
</tr>
<tr>
<td>BC</td>
<td>750-799</td>
</tr>
<tr>
<td>C</td>
<td>700-749</td>
</tr>
<tr>
<td>D</td>
<td>600-699</td>
</tr>
<tr>
<td>F</td>
<td>less than 600</td>
</tr>
</tbody>
</table>

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) 100 400

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

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading/ Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 22nd</td>
<td>Introductions (staff and students), syllabus overview, out-of-class assignments, overview of video assignment</td>
<td></td>
</tr>
<tr>
<td>Jan. 29th</td>
<td>Genetics warm-up; concept maps; career fair preparation</td>
<td></td>
</tr>
<tr>
<td>Feb. 5th</td>
<td>Hasan Khatib-Epigenetics and cow model system</td>
<td></td>
</tr>
<tr>
<td>Feb. 12th</td>
<td>Epigenetics discussion; Meet with small groups:</td>
<td>Epigenetics Statement due 2/26</td>
</tr>
<tr>
<td>Feb. 19th</td>
<td>Joan Jorgenson – Sex Determination</td>
<td></td>
</tr>
<tr>
<td>Feb. 26th</td>
<td>Sex determination discussion</td>
<td>Sex Determination Statement due 3/5</td>
</tr>
<tr>
<td>Mar. 5th</td>
<td>Academic Success Strategies BuckyNet, resume writing, letters of recommendation, Genetics careers, Writing Center, Certificates</td>
<td></td>
</tr>
<tr>
<td>Mar. 12th</td>
<td>Stem cells, Anita Bhattacharyya</td>
<td></td>
</tr>
<tr>
<td>Mar 19th</td>
<td>Stem cells discussion: Meet with small groups: Video prep time</td>
<td>Stem Cells Statement due 4/2</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Notes</td>
</tr>
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<td>-----------</td>
<td>------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Mar 25th-29th</td>
<td>Spring Break</td>
<td></td>
</tr>
<tr>
<td>Apr 2nd</td>
<td>Peer Panel&lt;br&gt;How to find a research mentor</td>
<td>Be prepared to work with your video team&lt;br&gt;Any 2 out-of-class assignments due</td>
</tr>
<tr>
<td>Apr. 9th</td>
<td>Genetic counseling, Casey Reiser</td>
<td></td>
</tr>
<tr>
<td>Apr. 16th</td>
<td>Genetic counseling discussion; role-playing activity</td>
<td>Genetic Counseling Statement due 4/23</td>
</tr>
<tr>
<td>Apr. 23rd</td>
<td>Scientific Inquiry</td>
<td>Remaining 2 out-of-class assignments due</td>
</tr>
<tr>
<td>Apr. 30th</td>
<td>Bioethics discussion; Meet with small groups: Video prep time</td>
<td>Be prepared to work with your video team&lt;br&gt;Bioethics statement due 5/7</td>
</tr>
<tr>
<td>May 7th</td>
<td>Video presentations</td>
<td></td>
</tr>
</tbody>
</table>

**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](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 1st 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

Address  Laboratory of Genetics
         University of Wisconsin-Madison
         425-G Henry Mall, Rm 2422
         Madison, WI 53706

DOB      March 21st, 1965

E-mail   cday2@wisc.edu

Tel.     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
                Zea mays, 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


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
Edinburgh University, UK, 1995.
Glasgow University, UK, 1995.

Conferences (Oral Presentations)

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


CHRISTOPHER EDWARD TILMANN, Ph.D.

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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, Environnement, 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, *C. elegans*

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, 14th International *C. elegans* meeting
1995   Graduated *Magna Cum Laude*
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


Presentations


**Abstracts**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>First Annual <em>C. elegans</em> Topic Meeting</td>
</tr>
<tr>
<td>2004</td>
<td>Cold Spring Harbor Laboratory Germ Cell Meeting</td>
</tr>
<tr>
<td>2004</td>
<td>Society for Developmental Biology 63rd Annual Meeting</td>
</tr>
<tr>
<td>2003</td>
<td>14th International <em>C. elegans</em> meeting</td>
</tr>
<tr>
<td>2002</td>
<td>Midwest <em>C. elegans</em> Meeting</td>
</tr>
<tr>
<td>2001</td>
<td>Society for Developmental Biology 60th Annual Meeting</td>
</tr>
<tr>
<td>1997-2000</td>
<td>Duke University Annual Graduate Student Symposium</td>
</tr>
<tr>
<td>1999</td>
<td>Society for Developmental Biology 58th Annual Meeting</td>
</tr>
<tr>
<td>1998</td>
<td>Society for Developmental Biology Annual Southeast Regional Meeting</td>
</tr>
<tr>
<td>1998</td>
<td>Society for Developmental Biology 57th Annual Meeting</td>
</tr>
<tr>
<td>1997</td>
<td>Society for Developmental Biology 13th International Congress, 56th Annual Meeting</td>
</tr>
</tbody>
</table>
## Student research projects

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Student Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Allandria Edwards</td>
</tr>
<tr>
<td>2006-2007</td>
<td>William Ruff</td>
</tr>
<tr>
<td>2007</td>
<td>Gregory DiSilvio</td>
</tr>
<tr>
<td>2007</td>
<td>Katelyn Woods</td>
</tr>
<tr>
<td>2006</td>
<td>Larisa Broglie</td>
</tr>
<tr>
<td>2006</td>
<td>Elizabeth March-Steves</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Student Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Samantha Greenbaum</td>
</tr>
<tr>
<td>2009</td>
<td>Rachel Shillinger</td>
</tr>
<tr>
<td>2008 - 2009</td>
<td>Kristen Henkel</td>
</tr>
<tr>
<td>2008</td>
<td>Maureen Daly</td>
</tr>
<tr>
<td>2008</td>
<td>Thomas Darrow</td>
</tr>
</tbody>
</table>

## Service activities

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>FE 100 (Freshman Experience)</td>
</tr>
<tr>
<td>2008-2010</td>
<td>Core Advisor to Freshman</td>
</tr>
<tr>
<td>2008</td>
<td>Undergraduate Research and Scholarship Committee</td>
</tr>
<tr>
<td>2006-2010</td>
<td>Biology Department Student Advisor</td>
</tr>
<tr>
<td>2005-2010</td>
<td>Departmental search committees for tenure-track and visiting professors</td>
</tr>
</tbody>
</table>
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


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  
July 1, 2005 - present

Student Services Coordinator  
August 17, 1999 to June 30, 2005

Genetics Department

*Undergraduate Advisor*  
ongoing

Primary advisor to Freshmen and Sophomores  
Point person for 300 undergraduates  
Career Development and Exploration  
Undergraduate Research placement

*SOAR advisor*  
Summers 2000-2012

Assess entering students' academic profile  
and advise on course selections

*UGA (undergraduate student organization)*  
Fall 1999 - present

organizer and staff advisor

Wisconsin Science Olympiad – advisor for Genetics section  
Spring 2004

*Graduate Students Coordinator*  
Summers 2000-present

Organize Summer Colloquium with faculty advisor and student representative  
Teach TA workshop for Genetics graduate students  
Annual update of Graduate Student Handbook  
Graduate Students First Year committee-organized Fall 2001  
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 Schlimgen Award

Graduate Students Admission Committee
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)

Graduate Students Admission Committee
2000-present

Genetics Curriculum Committee
Work with faculty chair and administrative assistant on agenda
Prepare meeting minutes

Genetics Curriculum Committee
ongoing

Genetics Retreat
Coordinate the Genetics Retreat committee (2 faculty, 6 graduate students),
Solicited financial sponsorship
Plan and implement

Genetics Retreat
2001-present

Freshman Seminar Course
Co-facilitate

Freshman Seminar Course
Spring 2000-present

Genetics Website
Work with department IT specialist in website updates

Genetics Website
ongoing

Genetics Undergraduate Brochure
Designed brochure and coordinated production with CALS

Genetics Undergraduate Brochure
2000 & 2006

Sexual Harassment Co-Officer for Department, trained

Sexual Harassment Co-Officer for Department, trained
ongoing

Summer Newsletter; designer

Summer Newsletter; designer
Summers 2004 - present

College of Agriculture and Life Sciences

Committees
Advising Survey Committee (Ray)
IT committee (Barrows)
Diversity Committee (Hebert)

Committees
Fall 2001
Spring 2001
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 – 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- March 2001
  CALS recruiting booth (Duluth, MN)
Science Expo presenter April 2001, 2002
Study Skills Workshops – cofacilitator (with Pape) Fall 2002 – 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: neruogenetics

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
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
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. -Student 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 an 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 is it good to learn how to create web pages. Websites will be created using [http://www.weebly.com](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](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/UWS14.html](http://www.wisc.edu/students/saja/misconduct/UWS14.html)

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

**Definition of Academic Misconduct**
(taken from [http://www.wisc.edu/students/saja/misconduct/UWS14.html](http://www.wisc.edu/students/saja/misconduct/UWS14.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 14 is the chapter of the University of Wisconsin System Administrative code that regulates academic misconduct. UW-Madison implements the rules defined in UWS 14 through our own "Student Academic Misconduct Campus Procedures." UWS 14.03 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](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) 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

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**

**A Journal Article with no DOI**

**A Magazine Article**

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

**A Newspaper Article**
Avery, B. (2000, February 9). Oil Prices likely to remain high: Non-OPEC suppliers unable to challenge cartel. The EdmontonJournal. Retrieved from
Online encyclopedia (or Wikipedia---*Note it’s not a good idea to take stuff from here)

A Web Document

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:

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.
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Notes</th>
<th>Topics Covered</th>
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<tr>
<td>January 22nd, 2013</td>
<td>1408</td>
<td></td>
<td>Course &amp; Semester Long Project Overview</td>
</tr>
<tr>
<td>January 24th, 2013</td>
<td>DMC LAB:B1144</td>
<td><em>Note: Old Biochem is on Henry Mall</em></td>
<td><strong>LAB:</strong> Project overview &amp; Website Creation</td>
</tr>
<tr>
<td>January 29th, 2013</td>
<td>1408</td>
<td>Guest speaker: Adam Steinberg</td>
<td>“How to give a good presentation”</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>February 7th, 2013</td>
<td>DMC LAB:B1144</td>
<td>WebPage 1 due: Homepage w/Intro</td>
<td><strong>LAB:</strong> Homologene</td>
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<tr>
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<td><strong>LAB:</strong> ClustalW, Phylogeny.fr, TreeFAM, etc.</td>
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<tr>
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<td>Gene Ontology, Motifs &amp; Protein Domains</td>
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<tr>
<td>February 21st, 2013</td>
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<td><strong>LAB:</strong> GO, MOTIF, PFAM, SMART</td>
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<td><strong>LAB:</strong> Chemical Genetics</td>
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<tr>
<td>March 12th, 2013</td>
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<td>March 14th, 2013</td>
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<td>WebPages 3 due: Popular Science Article about your Primary Paper</td>
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<td>March 19th, 2013</td>
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<td>March 21st, 2013</td>
<td>DMC LAB:B1144</td>
<td></td>
<td><strong>LAB:</strong> UNIPROT, PROSITE &amp; work on projects</td>
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<tr>
<td>March 26th, 2013</td>
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<td>SPRING BREAK</td>
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<td>March 28th, 2013</td>
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<td>April 4th, 2013</td>
<td>DMC LAB:B1144</td>
<td>LAB tours: Genomics &amp; Proteomics Facilities</td>
<td><strong>LAB Tour:</strong> meet in Computer LAB, Discuss StoryBoard &amp; work on projects</td>
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<td>Biological Networks II</td>
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<td>April 18th, 2013</td>
<td>DMC LAB:B1144</td>
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<td><strong>LAB:</strong> Creating Interaction Networks &amp; Work on projects</td>
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<td>Final Presentations Overview</td>
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<tr>
<td>April 25th, 2013</td>
<td>DMC LAB:B1144</td>
<td>WebPages 4 due: Genomics to Biological Networks</td>
<td><strong>Final Presentations-3 talks</strong></td>
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<td>April 30th, 2013</td>
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<td>PEER Feedback Due</td>
<td>Final Presentations: 3 talks</td>
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<tr>
<td>May 2nd, 2013</td>
<td>DMC LAB:B1144</td>
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<td>Final Presentations: 4 talks</td>
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<td>May 7th, 2013</td>
<td>1408</td>
<td></td>
<td>Final Presentations : 4 talks</td>
</tr>
<tr>
<td>May 9th, 2013</td>
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<td></td>
<td>Final Presentations : 4 talks</td>
</tr>
<tr>
<td>May 19th, 2013</td>
<td>EXAM</td>
<td>Final Project Due</td>
<td>Final web project due</td>
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</table>
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*
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
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

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

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.
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

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**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?
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

Address  Laboratory of Genetics
           University of Wisconsin-Madison
           425-G Henry Mall, Rm 2422
           Madison, WI 53706

DOB       March 21st, 1965

E-mail    cday2@wisc.edu

Tel.      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
                      Zea mays, 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


**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
Edinburgh University, UK, 1995.
Glasgow University, UK, 1995.

**Conferences (Oral Presentations)**


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


## New Course Proposal

<table>
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<tr>
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<th>Genetics (412)</th>
<th>Status</th>
<th>Under Review by School/College</th>
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<tr>
<td>Proposer</td>
<td>Francisco J Pelegri</td>
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### 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
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)
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 Renegerative 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/emtraembryonic 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.
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?
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

**Dr. Xin Sun (XS)**
5262 Genetics-Biotechnology Center  
Phone: 265-5405  
email: 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:

**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)
**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
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
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.
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)
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Instructor</th>
<th>Reading, Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 3</td>
<td>The purpose of population genetics; historical and current controversies; evolutionary processes</td>
<td>Payseur</td>
<td>Hamilton 1.1-1.3</td>
</tr>
<tr>
<td>Sept. 5</td>
<td>Describing genetic variation; patterns of variation in natural populations</td>
<td>Payseur</td>
<td>Hamilton 2.1-2.5</td>
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<td></td>
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<td>Hahn “Describing Variation”</td>
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<tr>
<td>Sept. 10</td>
<td>Population Size 1: Genetic drift and effective population size</td>
<td>Payseur</td>
<td>Hamilton 3.1-3.5</td>
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<tr>
<td></td>
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<td></td>
<td>Homework due</td>
</tr>
<tr>
<td>Sept. 12</td>
<td>Population Size 2: Coalescent theory</td>
<td>Payseur</td>
<td>Hamilton 3.6-3.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hahn “The Coalescent”</td>
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<tr>
<td>Sept. 17</td>
<td>Mutation 1: Types of mutation; estimating mutation rates; mutation patterns in model organisms</td>
<td>Payseur</td>
<td>Hamilton 5.1</td>
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<td></td>
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<td>Homework due</td>
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<tr>
<td>Sept. 19</td>
<td>Mutation 2: Mutation models; describing and interpreting patterns of diversity</td>
<td>Payseur</td>
<td>Hamilton 5.3-5.5</td>
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<tr>
<td></td>
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<td>Hahn ms manual</td>
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<td>Sept. 24</td>
<td>Mutation 3: Neutral theory of molecular evolution; neutral diversity in natural populations</td>
<td>Payseur</td>
<td>Hamilton 8.1</td>
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<tr>
<td></td>
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<td></td>
<td>Hahn Homework due (C)</td>
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<tr>
<td>Sept. 26</td>
<td>Recombination 1: Estimating recombination rates; haplotypes; measuring linkage disequilibrium</td>
<td>Payseur</td>
<td>Hamilton 2.7</td>
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<td></td>
<td></td>
<td></td>
<td>Hahn “Recombination”</td>
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<tr>
<td>Oct. 1</td>
<td>Recombination 2: Linkage disequilibrium in natural populations</td>
<td>Payseur</td>
<td>Homework due</td>
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<tr>
<td>Oct. 3</td>
<td>Gene Flow 1: Non-random mating, inbreeding and population structure; describing population structure</td>
<td>Payseur</td>
<td>Hamilton 2.6, 4.1-4.6</td>
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<td></td>
<td>Hahn “Population Structure”</td>
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<tr>
<td>Oct. 8</td>
<td>Gene Flow 2: Identifying distinct populations and estimating gene flow</td>
<td>Payseur</td>
<td>Homework due (C)</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Author(s)</td>
<td>References</td>
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<tr>
<td>Oct. 10</td>
<td>Gene Flow 3: Determinants of gene flow; gene flow in natural populations; speciation</td>
<td>Payseur</td>
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<tr>
<td>Oct. 15</td>
<td>Changes in Population Size</td>
<td>Payseur</td>
<td>Homework due</td>
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<tr>
<td>Oct. 17</td>
<td>Demographic inference 1: methods using allele frequencies or haplotypes from population genomic data</td>
<td>Pool</td>
<td>Pool et al. 2010</td>
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<td>Oct. 22</td>
<td>Demographic inference 2: approximate Bayesian computation</td>
<td>Pool</td>
<td>Csillery et al. 2010 Wegmann et al. 2010</td>
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<tr>
<td>Oct. 24</td>
<td>Negative selection 1: Single locus models of natural selection; selection and mutation; selection and drift; nearly neutral theory</td>
<td>Pool</td>
<td>Hamilton 185-198, 222-226, 240-241</td>
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<tr>
<td>Oct. 29</td>
<td>Negative selection 2: Effects of selective constraint on sequence polymorphism and divergence</td>
<td>Pool</td>
<td>Keightley et al. 2005</td>
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<td>Oct. 31</td>
<td>Negative selection 3: Background selection; the relationship between recombination and diversity</td>
<td>Pool</td>
<td>Begun and Aquadro 1992 Charlesworth et al. 1993</td>
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<td>Nov. 5</td>
<td>Positive selection 1: Selective sweeps - basic model, coalescent model</td>
<td>Pool</td>
<td>Homework due</td>
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<td>Nov. 7</td>
<td>Positive selection 2: Influence of selective sweeps on genetic variation (diversity, frequencies, haplotypes and LD) and methods for detection</td>
<td>Pool</td>
<td>msms manual Thornton et al. 2007</td>
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<tr>
<td>Nov. 12</td>
<td>Positive selection 3: Positive selection on standing genetic variation; incomplete sweeps and methods for detection</td>
<td>Pool</td>
<td>Pritchard et al. 2010 Karasov et al. 2010 Homework due (C)</td>
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<tr>
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<td>Topic</td>
<td>Resource(s)</td>
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<tr>
<td>Nov. 21</td>
<td>Genome-wide selection signals 1: Divergence, polymorphism, and evidence of positive selection</td>
<td>Pool Hahn Chapter 7 McDonald/Kreitman 1992 Andolfatto 2005</td>
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<tr>
<td>Nov. 26</td>
<td>Genome-wide selection signals 2: Recurrent hitchhiking model; the apparent prevalence of positive selection in different species</td>
<td>Pool Jensen et al. 2008* Sella et al. 2009 Hernandez et al. 2011 Homework due</td>
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<td>Nov. 28</td>
<td>No Class (Thanksgiving)</td>
<td></td>
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<tr>
<td>Dec. 3</td>
<td>Genome-wide selection signals 3: Natural selection vs. population history - selectionist/neutralist debate, population genomic data</td>
<td>Pool</td>
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<tr>
<td>Dec. 5</td>
<td>Next generation sequence data – challenges and potential, the future of population genetics</td>
<td>Pool</td>
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<tr>
<td>Dec. 10</td>
<td>Genome-wide Association Studies</td>
<td>Payseur</td>
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<tr>
<td>Dec. 12</td>
<td>Project Presentations</td>
<td>Payseur, Pool</td>
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New Course Proposal

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<tr>
<th>Subject</th>
<th>Genetics (412)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposer</td>
<td>Francisco J Pelegri</td>
</tr>
<tr>
<td>Status</td>
<td>Under Review by School/College</td>
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</table>

## 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.
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
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.
| Week 1A | 1/24/12 | Intro, phylogeny primer |
| Week 1B | 1/26/12 | Anatomy of a genome project |
| Week 2A | 1/31/12 | **PAPER DISCUSSION**  
| 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 | **PAPER DISCUSSION**  
| Week 4A | 2/14/12 | Whole genome duplication (Dana Wohlbach, guest lecturer) |
| Week 4B | 2/16/12 | **PAPER DISCUSSION**  
| Week 5A | 2/21/12 | Horizontal Transfer & Bacterial Genomics |
| Week 5B | 2/23/12 | **PAPER DISCUSSION**  
| Week 6A | 2/28/12 | Molecular evolution - Part I |
| Week 6B | 3/1/12 | **PAPER DISCUSSION**  
| Week 7A | 3/6/12 | Molecular evolution - Part II: genome-wide scans |
| Week 7B | 3/8/12 | **PAPER DISCUSSION**  
| Week 8A | 3/13/12 | QTL mapping |
| Week 8B | 3/15/12 | **PAPER DISCUSSION**  
| Week 9A | 3/20/12 | Evolution of gene expression |
| Week 9B | 3/22/12 | **PAPER DISCUSSION**  

| Week 10A | 3/27/12 | eQTL mapping & the cis-trans debate  
**PAPER DISCUSSION**  
Tirosh et al. Science 2009 A yeast hybrid provides insight into the evolution of gene expression regulation. |
| Week 10B | 3/29/12 |

| 4/2/-4/6/12 | Spring Break |

| Week 11A | 4/10/12 | Evolution of cis-regulatory motifs  
**PAPER DISCUSSION**  
| Week 11B | 4/12/12 |

| Week 12A | 4/17/12 | Evolution of cis-regulatory networks  
**PAPER DISCUSSION**  
| Week 12B | 4/19/12 |

| Week 13A | 4/24/12 | Mammalian genome evolution  
**PAPER DISCUSSION**  
| Week 13B | 4/26/12 |

| Week 14A | 5/1/12 | Final wrap-up, remaining questions  
**PAPER DISCUSSION**  
| Week 14B | 5/3/12 |

| 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 (CALS) (494)  
Proposer: John A Ferrick

Status: Under Review by Subject Owner

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*
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
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).
Meet 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.
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?) to 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

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**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

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**General Education Designations**

Should the course be reviewed for the general education requirement?

Yes

Which requirements?

Communication B
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
  o Compare a specific element of Ugandan culture to U.S. culture and record your comparison with a reflection or diagram in your portfolio
  o 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.
  o Learn about an important Ugandan historical event and describe its significance.
  o 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
  o 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 of 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.
• Active learning participants will reflect on Health Care of Agricultural Systems, clean water, nutrition, infection diseases, etc.
  o 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.
  o Rank the health systems as “lowest, intermediate, highest” for access to trained health care workers, crowding, access to medical equipment. Explain your ranking.
  o 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.
  o Record specific examples of inter-relationship between economics and health care in Uganda and the U.S. as they came up during our visits.
  o Interview our university hosts to learn about their views of the progress made and the main issues now facing the people they work with-both rural and urban.

Assignments

<table>
<thead>
<tr>
<th>Deadline</th>
<th>Item</th>
<th>Grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each week</td>
<td>Newspaper articles</td>
<td>10</td>
</tr>
<tr>
<td>Dec. 5</td>
<td>Initial Questions</td>
<td>10</td>
</tr>
<tr>
<td>Dec. 5</td>
<td>Exam</td>
<td>10</td>
</tr>
<tr>
<td>Dec. 14</td>
<td>Outside class activities</td>
<td>10</td>
</tr>
<tr>
<td>End of program</td>
<td>Final Portfolio Entries &amp; Final Project</td>
<td>40</td>
</tr>
</tbody>
</table>
  • Completeness (number of entries)
  • Evidence of critical thinking/ depth of meaning and thoroughness
  • Use of variety of artifacts (pictures, maps, drawing, brochure, video, audio)
  • Originality in formatting and presentation; Grammar and spelling
| 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%
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 5</td>
<td>Introduction – Schedule/Program Overview, Safety</td>
<td>James/John (Memorial Union)</td>
</tr>
<tr>
<td>12</td>
<td>Projects, Service-learning, VHP – Cultural Dinner at East African Restaurant on State St.</td>
<td>James/John (Buraka’s)</td>
</tr>
<tr>
<td>19</td>
<td>Framework – MDGs and Projects &amp; Health</td>
<td>James/John &amp; Linda Johnson, UHS (Confirmed)</td>
</tr>
<tr>
<td>26</td>
<td>A History of African Colonialism</td>
<td>Jim Delehanty (Confirmed)</td>
</tr>
<tr>
<td>Oct. 3</td>
<td>Development and Economics of Development Projects</td>
<td>James/John</td>
</tr>
<tr>
<td>10</td>
<td>General Overview – Global Health &amp; Nutrition Issues</td>
<td>Ken Shapiro (Confirmed)</td>
</tr>
<tr>
<td>17</td>
<td>Review</td>
<td>James/John</td>
</tr>
<tr>
<td>24</td>
<td>Health Care System in Uganda</td>
<td>Angela Mckenzie (confirmed)</td>
</tr>
<tr>
<td>31</td>
<td>Malnourishment</td>
<td>Julie Thurlow (Confirmed)</td>
</tr>
<tr>
<td>November 7</td>
<td>Malaria</td>
<td>Susan Paskewitz (confirmed)</td>
</tr>
<tr>
<td>14</td>
<td>A Ugandan Perspective – women’s perspectives</td>
<td>Solomy Ntambi</td>
</tr>
<tr>
<td>21</td>
<td>THANKSGIVING – Group Work</td>
<td>THANKSGIVING</td>
</tr>
<tr>
<td>28</td>
<td>AIDS and Education</td>
<td>James/John</td>
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<tr>
<td>December 5</td>
<td>Exam – Questions Due</td>
<td>James/John</td>
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</tbody>
</table>
(14)  
12  
(15)  
Ugandan Culture, Orientation/Questions & Wrap-up  
James/John

DEC. 26  
LEAVE FOR UGANDA

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
# Uganda Field Experience
## December 26, 2012 – January 17, 2013

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<tbody>
<tr>
<td>8.30-10.00</td>
<td>DEPARTURES</td>
<td></td>
<td></td>
<td>BREAKFAST</td>
<td>Health and Safety</td>
<td></td>
<td>Leave <strong>EARLY</strong> for QENP Ronnie/John</td>
</tr>
<tr>
<td>10.00-11.00</td>
<td></td>
<td>DEPART FOR UGANDA</td>
<td></td>
<td></td>
<td>Leave for Mulago</td>
<td></td>
<td>This is a long drive 10-12 hours. Bring snacks!</td>
</tr>
<tr>
<td>11.30-1.00</td>
<td></td>
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<td></td>
<td></td>
<td>Tour Mulago Hospital Complex Ronnie/students (We will split into small groups)</td>
<td></td>
<td>Accommodation at Albertine Rift Safari Camps and Lodges in QENP</td>
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<tr>
<td>1.00-2.00</td>
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<td></td>
<td></td>
<td>LUNCH – At Nommo Gallery</td>
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<td>2.00-5.00</td>
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<td></td>
<td></td>
<td>Imelda/Ronnie Forex, banks. City Tour Ronnie</td>
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<tr>
<td>8.30-10.00</td>
<td>Visit surrounding communities &amp; check on health, food &amp; educational facilities</td>
<td>Game Drive</td>
<td>Leave for Kabale</td>
<td>Kabale Hospital (You will make contacts and go back to talk to specific people about your topics)</td>
<td>Other project activities to be determined</td>
<td>Other project activities to be determined</td>
<td>Lake Bunyonyi (FREE DAY)</td>
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<tr>
<td>10.00-11.00</td>
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<td></td>
<td></td>
<td></td>
<td>• Boat ride</td>
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<td>11.30-1.00</td>
<td></td>
<td></td>
<td>Leave for Kabale</td>
<td></td>
<td></td>
<td></td>
<td>• Swimming</td>
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<td>This is another long drive 6-8 hours. Bring snacks!</td>
<td></td>
<td></td>
<td></td>
<td>• Nature walks, etc.</td>
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<td></td>
<td>Accommodations at Jopfan Hostel</td>
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<tr>
<td>1.00-2.00</td>
<td>LUNCH</td>
<td>LUNCH</td>
<td>LUNCH at Ntungamo Town</td>
<td>LUNCH</td>
<td>LUNCH</td>
<td>LUNCH at Overland</td>
<td>LUNCH at Overland</td>
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<tr>
<td>2.00-5.00</td>
<td>FREE TIME</td>
<td>FREE TIME</td>
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<td>FREE TIME</td>
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<tr>
<td>8.30-10.00</td>
<td>Visit communities around lake</td>
<td>Leave for Mukono</td>
<td>Makerere University</td>
<td>• Mobile Clinic</td>
<td>• Mobile Clinic (cont)</td>
<td>Source of the Nile and Buggagali Falls in Jinja</td>
<td>FREE</td>
</tr>
<tr>
<td>10.00-11.00</td>
<td>Visit Private Hospital?</td>
<td>This is another long drive 8-10 hours with stop at the Equator</td>
<td>Visit Mwanamugimu Child Nutrition Unit</td>
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<tr>
<td>11.30-1.00</td>
<td>Other activities to be determined</td>
<td>Bring snacks!</td>
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<tr>
<td>1.00-2.00</td>
<td>LUNCH</td>
<td>LUNCH on the road</td>
<td>LUNCH</td>
<td>LUNCH</td>
<td>LUNCH at Mulago</td>
<td>LUNCH in Jinja</td>
<td>LUNCH</td>
</tr>
<tr>
<td>2.00-5.00</td>
<td>Other activities</td>
<td>US Embassy</td>
<td></td>
<td></td>
<td>• Mobile</td>
<td>• Mobile</td>
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to be determined and return to Jophan

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<tbody>
<tr>
<td>8.30-10.00</td>
<td>Lweza Service Learning Projects</td>
<td>Lweza Service Learning Project</td>
<td>Presentations Free</td>
<td>DEPARTURE</td>
<td></td>
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<tr>
<td>10.00-11.00</td>
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<td>11.30-1.00</td>
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<tr>
<td>1.00-2.00</td>
<td>LUNCH AT LWEZA</td>
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<td>2.00-5.00</td>
<td>Lweza Service Learning Projects</td>
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## BIOGRAPHICAL SKETCH

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>John A. Ferrick</td>
<td>Director, International Programs, College of Agricultural and Life Sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Wisconsin, Madison, WI</td>
<td>B.S.</td>
<td>1980</td>
<td>Secondary Education</td>
</tr>
<tr>
<td>University of Wisconsin, Madison, WI</td>
<td>M.S.</td>
<td>1987</td>
<td>Agriculture Extension/Adult Education</td>
</tr>
</tbody>
</table>

### A. Positions and Employment.

<table>
<thead>
<tr>
<th>Year</th>
<th>Position Description</th>
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</table>
| 2009 - Present | **Director – 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     | **Assistant Dean – Division of International Studies, UW Madison**  
                 Working with science faculty and staff on efforts to internationalize their work. |
| 2006 - 2009   | **Associate Director and Faculty Associate, 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   | **Director – 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   | **Lead Evaluator/Associate Director, 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   | **Executive Director – Wisconsin Rural Development Center, a nonprofit rural development center.** Responsible to 13-15 member Board of Directors |
| 1990 - 1992   | **Country Director and Associate Director for Programming and Training - 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    | **Program Director - 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   | **Training Director - Experiment in International Living – Vermont**  
                 Developed, facilitated, and managed all training components of international programs. Developed training materials and budgets. |
<table>
<thead>
<tr>
<th>Year</th>
<th>Position/Role</th>
<th>Details</th>
</tr>
</thead>
</table>

### 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
- 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
- Pre-1990  Developed, facilitated and participated in programs on leadership and training skills development and techniques for facilitation and management.
# New Course Proposal

<table>
<thead>
<tr>
<th>Subject</th>
<th>Art History (180)</th>
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</thead>
<tbody>
<tr>
<td>Proposer</td>
<td>Anna V Andrzejewski</td>
</tr>
<tr>
<td>Status</td>
<td>Under Review by School/College</td>
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</tbody>
</table>

## 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

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.
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.

2. (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)**

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance, participation, and reading presentation</td>
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<tr>
<td>Synthesis Writing Assignments</td>
<td>60%</td>
</tr>
<tr>
<td>Attendance and Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
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</table>

**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](https://www.wisc.edu/curriculum/student-life/Disciplinary-Guidelines/) at

Art History / Design Studies / History 464 Syllabus, Fall 2012
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

**Week 2:** CREATING AND CONSUMING

9/11  Creating Material Culture
Guest Speaker: Tom Loeser (Art Department)
BRING: Something you made

9/13  Consuming Material Culture
Guest Speaker: Ann Smart Martin (Art History Department)
BRING: Something you bought
      *Buying into the World of Goods: Early Consumers in Backcountry Virginia*, 173-193


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)

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)

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

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 Art History / Design Studies / History 464 Syllabus, Fall 2012  Page 5 of 9
Madison Mayor and Current Community Director, Greenbush-Vilas Revitalization Project


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


10/11 Tactility and Consumption

Guest Speaker: Joann Peck (School of Business)


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


Week 8: ______ JEWELRY AND ADORNMENT

10/23  Hairwork in the United States  
Guest Speaker, Beverly Gordon, Professor Emeritus, Design Studies  

10/25  Beads and Bodies in Africa  
Guest Speaker: Henry Drewal (Art History Department)  

Week 9: ______ HALLOWEEN

10/30  Halloween  

11/1  IN-CLASS ESSAY #2

THEME 3: TECHNOLOGIES

Week 10: ______ COMMUNICATION

11/6  The Material Culture of Voting  
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

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)

11/15 Teaching Science
Guest Speaker: Jim Lattis (Director, UW Space Place and Faculty Associate, Astronomy Department)
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

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

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 21ST 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**
<table>
<thead>
<tr>
<th>Course Change Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject</strong></td>
</tr>
<tr>
<td><strong>Proposer</strong></td>
</tr>
<tr>
<td><strong>Status</strong></td>
</tr>
</tbody>
</table>

### 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
<table>
<thead>
<tr>
<th>Major</th>
<th>Current Curriculum</th>
<th>Proposed Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;E Soc.</td>
<td>The curriculum sheet currently says, &quot;C&amp;E SOC 500 preferred, but students can get</td>
<td>Delete &quot;preferred, but students can get permission to count C&amp;ES SOC 573 (S) or</td>
</tr>
<tr>
<td></td>
<td>permission to count C&amp;ES SOC 573 (S) or 617 (S) in conjunction with C&amp;E SOO 699&quot;</td>
<td>617 (S) in conjunction with C&amp;E SOO 699&quot; under Capstone.</td>
</tr>
<tr>
<td>Dietetics (see attached</td>
<td></td>
<td>delete MHR 300 and FS 537</td>
</tr>
<tr>
<td>curriculum sheet)</td>
<td>NS 520 (2 cr.)</td>
<td>add Gen Bus 310 and Gen Bus 311</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NS 520 (3 cr.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>elim Group 2 communication requirements (LSC 100 and LSC 212)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>adding PHS 370, Med. Hist. 213, and NS 203 to Recommended Electives</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td></td>
<td>adding Geog 475 (US Environmental Issues: Policy and Politics) to Env. Policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Social Perspectives, Core AND focused electives</td>
</tr>
<tr>
<td>Forest Science</td>
<td>Conservation requirement options (Envir St 361, F&amp;W Ecol 360, 565, 651, Geog 339)</td>
<td>These courses should now be able to be double counted.</td>
</tr>
<tr>
<td></td>
<td>do not double count with elective track courses</td>
<td></td>
</tr>
<tr>
<td>Horticulture</td>
<td></td>
<td>add Hort 375, sect 001 (Plants and Human Wellbeing) to Horticulture Breadth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>requirement</td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td></td>
<td>adding PHS 370, Med. Hist. 213, and NS 203 to Recommended Electives</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td></td>
<td>Adding Stats 371 to math</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adding Chem 341/2 to chem</td>
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<tr>
<td></td>
<td></td>
<td>Adding Pl Path 590 (capstone)</td>
</tr>
<tr>
<td>Soil Science</td>
<td></td>
<td>reorganization of Specialization courses in Turf specialization (see attached</td>
</tr>
<tr>
<td></td>
<td></td>
<td>curriculum sheet)</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>CALS Graduation Eligibility Requirements</th>
<th>Advisor/Advisee Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum of 120 degree credits</td>
<td></td>
</tr>
<tr>
<td>Minimum 2.0 Cumulative GPA</td>
<td></td>
</tr>
<tr>
<td>Last 30 Credits in Residence</td>
<td></td>
</tr>
</tbody>
</table>

**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](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/](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 300 (a) and 232 (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)

____ Gen Bus 310
____ Gen Bus B11

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)

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)

This version was last updated on: 7/23/2012
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.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall Semester Sample Courses</th>
<th>Credits</th>
<th>Fall Semester Actual Courses</th>
<th>Spring Semester Sample Courses</th>
<th>Credits</th>
<th>Fall Semester Actual Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>CHEM 103</td>
<td>4</td>
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<td>CHEM 104</td>
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<td>Communications</td>
<td>3</td>
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<td>PSYCH 202</td>
<td>3</td>
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<tr>
<td></td>
<td>MATH 112 or 114</td>
<td>3-5</td>
<td></td>
<td>ZOOLOGY 101 or ANTHRO 104²</td>
<td>3</td>
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<tr>
<td></td>
<td>ZOOLOGY 101 or ANTHRO 104²</td>
<td>3</td>
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<td>ZOOLOGY 102</td>
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<td></td>
<td>Electives</td>
<td>2</td>
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<td>FIRST-YEAR SEMINAR</td>
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<tr>
<td></td>
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<td>15-17</td>
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<td></td>
<td>NUTR SCI 200¹</td>
<td>1</td>
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<td>NUTR SCI 332</td>
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<td></td>
<td>MICROBIO 101 or 303</td>
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<td>PHYSIOL 335</td>
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<td></td>
<td>MICROBIO 102 or 304</td>
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<td>Statistics</td>
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<td>CHEM 341¹</td>
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<td>Electives</td>
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<td>FOOD SCI 301</td>
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<tr>
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<td>Communications²</td>
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<td>14-15</td>
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<td>Year 2</td>
<td>MHR 300 (prior auth. req'd)</td>
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<td>NUTR SCI 431³</td>
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<tr>
<td></td>
<td>BMOLCHEM 314⁴ or BIOCHEM 501</td>
<td>3</td>
<td></td>
<td>NUTR SCI 510</td>
<td>3</td>
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<td>Electives</td>
<td>9-10</td>
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<td>Education Techniques⁶</td>
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<td>Electives</td>
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<td>Year 3</td>
<td>NUTR SCI 631²</td>
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<td>FOOD SCI 537⁶</td>
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<td>FOOD SCI 437⁴</td>
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<td>NUTR SCI 520</td>
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<td>FOOD SCI 438⁴</td>
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<td>Electives</td>
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<td>NUTR SCI 500</td>
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<td>15-16</td>
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<tr>
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<td>Electives</td>
<td>6-7</td>
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<tr>
<td>Year 4</td>
<td></td>
<td>15-16</td>
<td></td>
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</tr>
</tbody>
</table>

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](http://www.nutrisci.wisc.edu) for specific information on admission requirements and application procedure.

¹ Math 112 is a prerequisite
² Require both UW (COMM-A & COMM-B) and Dietetics Communication requirements (see curriculum sheet)
³ ANTHRO 104 fulfills both the Ethnic Studies and International Studies requirements
⁴ Offered only first semester
⁵ Offered only second semester
⁶ ED PSYCH 301 or INTER-HE 427, 428, 515, or AGRONOMY 379 (one course required)
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

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) or [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.)**
- Some courses may fulfill Gen Ed requirements.

- CHEM 327 (P)
- MATH 222 (r)
- BOTANY/F&W ECOL/ZOOLOGY 660 (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)
- 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]
- 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)(S) or 104

**Ag and Applied Econ or Accounting or Personnel Management (6 cr.)**
- 6 credits from: ACCT I S 100, 211, 300 (r), 301, 325, 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 15 300 (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
- MHR 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 402
  - Hort 261
  - Hort Soils 332
  - Plant Path 300

**Specialization Courses – complete 7 credits**
- BSE 101
- BSE 43
- Bot 462
- Hort 120
- Hort 262
- Hort 461
- Entom 351
- BSE 116
- BSE 118

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**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.