NOTE to prospective students: This syllabus is intended to provide students who are considering taking this course an idea of what they will be learning. A more detailed syllabus will be available on the course site for enrolled students and may be more current than this sample syllabus. Summer term courses may be accelerated – please check the Ecampus Schedule of Classes for more information.

FW 370
Conservation Genetics - 4 credits

COURSE CREDIT:
(4) This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

PREREQUISITES, CO-REQUISITES AND ENFORCED PREREQUISITES:
BI 211 [D-] and BI 212 [D-] and BI 213 [D-] and /or 1 year introductory biology.

COURSE DESCRIPTION:

FW 370. CONSERVATION GENETICS (4).
Explores the genetic basis of conservation and management issues concerned with populations and species. Genetic techniques used by conservation biologists are reviewed. Applications of genetic information to natural resource problems are investigated.

CONTACT INFORMATION:
For more information, contact: Douglas Robinson, NASH 104, 541-737-9501.

Sample syllabi may not have the most up-to-date information. For accuracy, please check the ECampus Schedule of Classes to see the most current instructor information. You can search for contact information by name from the OSU Home Page.

LEARNING RESOURCES:
Much of the course material will be available online. Learning often will be associated with reading one or two short scientific papers about topics in conservation or management that involve genetic aspects, so that students can understand how the concepts and methods of genetics are applied in real-world conservation and management situations. The first few weeks review basic genetics so that students can understand the
conservation-relevant materials later in the course. The most recent e-book version of Pierce, B.A. Genetics: A conceptual approach published by W.H. Freeman is required.

NOTE: For textbook accuracy, please always check the textbook list at the OSU Bookstore website. Sample syllabi may not have the most up-to-date information.

Students can also click the ‘OSU Beaver Store’ link associated with the course information in the Ecampus schedule of classes for course textbook information and ordering.

COURSE SPECIFIC MEASURABLE STUDENT LEARNING OUTCOMES:
1. Describe the steps used by laboratory scientists to measure and compare genetic diversity data obtained by common techniques.
2. Calculate genotype frequencies under the assumption of Hardy-Weinberg equilibrium.
3. Illustrate the process underlying the polymerase chain reaction.
5. Formulate a plan to preserve genetic diversity of a captive, or natural but inbred, population.
6. Evaluate arguments concerning the taxonomic distinctiveness of populations based on multiple forms of genetic evidence.

COURSE CONTENT AND POLICIES:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Assessment</th>
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</table>
| 1    | The basics of genetics 1  
--DNA  
--Genes, alleles, loci, chromosomes  
--Heterozygositity |  |
| 2    | The basics of genetics 2  
--Replication and mutation  
--Mating systems and population sizes |  |
| 3    | More Mendelian Genetics  
--inheritance and related issues | Midterm 1 |
| 4    | Methods used to study genetics  
--Sex determination  
--DNA extraction and PCR  
--Restriction enzymes, electrophoresis, DNA fingerprinting  
--Microsatellites, RFLP, AFLP  
--Sequencing, SNP, DNA bar codes  
--Genomics, Genome Resource Banking |  |
| 5    | What should we conserve? 1  
--Phylogenetics  
--Species concepts  
--Evolutionarily significant units  
--How different is different enough? |  |
| 6    | What should we conserve? 2 |  |
7 Rates of genetic evolution in nature
--Natural selection, generation times
--Founder effects, inbreeding
--Genetic drift, bottlenecks

8 Connectivity and gene flow
--Habitat fragmentation, dispersal
--Demographic trends, effective population sizes
--Landscape genetics
--Ecological associations with gene flow

9 Captive populations and breeding programs
--Issues of concern
--Pedigree analysis
--Managing genetic diversity of captive organisms
--Artificial selection

10 Wildlife forensics/genetic engineering
--Species and stock identification
--Endangered species
--Ancient DNA
--Laws
--Genetically modified organisms
--Recombinant DNA, antibiotic resistance, and wild/captive animal interactions

EVALUATION OF STUDENT PERFORMANCE:
Student comprehension of course material will be evaluated by examinations (2 midterms and one comprehensive final exam). Each midterm is worth 100 points. The final exam is comprehensive (covers all material in the course) and is worth 200 points. Grades are based on the percentage of the 40 points available, following a 10 point scale (e.g., 90-100 = A, 80-89 = B, etc).

COURSE SITE LOGIN INFORMATION
Information on how to login to your course site can be found HERE.

STATEMENT REGARDING STUDENTS WITH DISABILITIES
Oregon State University is committed to student success; however, we do not require students to use accommodations nor will we provide them unless they are requested by the student. The student, as a legal adult, is responsible to request appropriate accommodations.
The student must take the lead in applying to Disability Access Services (DAS) and submit requests for accommodations each term through DAS Online. OSU students apply to DAS and request accommodations at our Getting Started with DAS page.

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

Additionally, Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities.

**ACADEMIC INTEGRITY AND STUDENT CONDUCT (OSU POLICY)**

Students are expected to be honest and ethical in their academic work. Intentional acts of academic dishonesty such as cheating or plagiarism may be penalized by imposing an “F” grade in the course.

Student conduct is governed by the universities policies, as explained in the Office of the Dean of Student Life: Student Conduct and Community Standards. In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity, and respect.

Students are expected to conduct themselves in the course (e.g. on discussion boards, email postings, etc.) in compliance with the university's regulations regarding civility. Students will be expected to treat all others with the same respect as they would want afforded to themselves. Disrespectful behavior (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors are unacceptable and can result in sanctions as defined by Student Conduct and Community Standards.

For more info on these topics please see:
- [Statement of Expectations for Student Conduct](#)
- [Student Conduct and Community Standards - Offenses](#)
- [Policy On Disruptive Behavior](#)

**PLAGIARISM**

You are expected to submit your own work in all your assignments, postings to the discussion board, and other communications, and to clearly give credit to the work of others when you use it. Academic dishonesty will result in a grade of “F.”
• Statement of Expectations for Student Conduct
• Avoiding Academic Dishonesty

TECHNICAL ASSISTANCE
If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.
• COURSE DEMO
• GETTING STARTED

TUTORING
For information about possible tutoring for this course, please visit our Ecampus NetTutor page. Other resources include:
• Writing Center
• Online Writing Lab

STUDENT EVALUATION OF TEACHING
The online Student Evaluation of Teaching form will be available in week 9 and close at the end of finals week. Students will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. Students will log in to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted. Course evaluation results are very important and are used to help improve courses and the learning experience of future students. Results from questions are tabulated anonymously and go directly to instructors and unit heads/supervisors. Unless a comment is “signed,” which will associate a name with a comment, student comments on the open-ended questions are anonymous and forwarded to each instructor. “Signed” comments are forwarded to the unit head/supervisor.

REFUND POLICY INFORMATION
Please see the Ecampus website for policy information on refunds and late fees.