FISH AND WILDLIFE POPULATION BIOLOGY
NREM 3523 –SPRING 2016

Instructor: Dr. W. Sue Fairbanks
564 Ag Hall
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e-mail: sue.fairbanks@okstate.edu

Class Period: TR – 10:30-11:45 am; Rm 129 HSCI Building
NOTE: Many class sessions will be held in the CASNR Computer Lab, Rm 266 AGH
(see schedule on last page)

Office Hours: I can meet you by appointment.

Textbook: No textbook required for this course.

Course Description: An introduction to the dynamics of fish and wildlife populations, including
estimation of population parameters and the influence of life history patterns, reproduction
and mortality, competition, predation, and movement on population growth. Simple models
of population dynamics will be introduced and manipulated to explore how management
strategies might be used to conserve/manipulate populations. Format will include lectures
and hands-on computer exercises.

Goals:
I expect this course to:
1) Introduce population ecology as a major approach in fish and wildlife management.
2) Build on population concepts introduced in the Principles class, providing a deeper
mechanistic understanding of factors that affect fish and wildlife populations.
3) Provide students with hands-on experience using computer models of population
dynamics to explore the influence of factors affecting fish and wildlife populations and
effectiveness of different management strategies.

Objectives:
By the end of the semester, students should be able to:
1) Demonstrate knowledge of ecological and anthropogenic factors that influence fish
and wildlife populations.
2) Compare various methods for estimating population parameters and choose the best
method for a given situation, with an understanding of its limitations.
3) Demonstrate familiarity with simple forms of population models and their use in fish
and wildlife management.

Grading: There will be three lecture exams (100 pts. each) given during the semester. The third
lecture exam will be given during the scheduled final exam period. Five units during the
semester will focus on use of relatively simple computer models, and each will include a 50-
pt. assignment to be handed in (total of 250 pts). In addition, there will be a scientific
literature assignment (50 pts) and a few small assignments (10-20 pts each) throughout the
semester. Most of the smaller assignments will be completed during class.
Course grades will be determined as a simple percentage of total possible points. Total points for the course will be about 640 pts. It is absolutely critical that you be in attendance for the class periods when we work on the computer exercises. If you miss even one day of work on the exercise, you will have to complete the entire exercise on your own. It is not fair to your partners not to know when/if you will be there to help with the work or to help you ‘make up’ what you missed. If you have an exceptionally valid excuse for missing class, and notify me ahead of time or on the day of class, you can make up the assignment on your own. Otherwise there will be no make-ups for assignments. Make-up exams will only be given if you provide a valid excuse before the exam. There will be NO extra credit in the class – DON’T ASK!

The following percentages will be the basis for assigning grades.

90-100 = A  
80-89 = B  
70-79 = C  
60-69 = D  
< 60 = F

**Academic Integrity Policy:** “Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University. You have the right to appeal the charge. Contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, academicintegrity.okstate.edu.”

**Academic Calendar, Final Exam Policies, etc.:** See OSU Provost’s Syllabus Attachment included with this syllabus on D2L.

**Additional Accommodations:** If you have a documented disability that requires accommodation, you should contact me privately at the beginning of the semester to discuss your specific needs. You will also need to go to Student Disability Services (315 Student Union) for coordination of your academic accommodations.
## TENTATIVE COURSE OUTLINE

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction; Population Parameters</td>
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<tr>
<td>2</td>
<td>Life History; Unstructured Population Growth Models</td>
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<tr>
<td>3</td>
<td>Unstructured Population Growth Models; Population Growth and Management problem set</td>
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<tr>
<td>4</td>
<td>Density Dependence Assignment; Review; Exam 1</td>
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<tr>
<td>5</td>
<td>Structured Models of Population Growth; begin Life Table Computer Exercise</td>
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<tr>
<td>6</td>
<td>Finish Life Table Exercise; begin Age-structured (Leslie) matrix Models</td>
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<tr>
<td>7</td>
<td>Finish Age-structured matrix models</td>
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<tr>
<td>8</td>
<td>Stage-structured matrix models</td>
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<tr>
<td>9</td>
<td>Sensitivity and Elasticity</td>
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--------------- Spring Break -------------------------------

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tr>
<td>10</td>
<td>Wrap up Structured Models; Review</td>
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<tr>
<td>11</td>
<td>Exam 2; begin Metapopulation Dynamics</td>
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<td>12</td>
<td>Metapopulation Computer Exercise</td>
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<tr>
<td>13</td>
<td>Species Interactions (Competition, Predation, Disease)</td>
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<tr>
<td>14</td>
<td>Finish Species Interactions; Effective Population Size; Population Cycles</td>
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<td>15</td>
<td>Finish Topics and Review</td>
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Class Schedule

NO CLASS – University holiday 18 Jan

Lecture Exam 1 4 Feb

Computer Lab; Rm 266 AGH 11, 16, 18, 23, 25 Feb

Computer Lab; Rm 266 AGH 1, 3, 8, 10 Mar

NO CLASS – Spring Break 14-18 Mar

Computer Lab; Rm 266 AGH (tentative) 22 Mar

Lecture Exam 2 29 Mar

Computer Lab; Rm 266 5, 7 Apr

Lecture Exam 3 (Finals Week) 5 May; 10:00-11:50 am