COURSE OBJECTIVES:
This course provides a field ecology immersion opportunity. The majority of the course will take place in a field setting, primarily at Wichita State University’s Ninnescah Biology Field Station (http://webs.wichita.edu/?u=bioscience&p=/fieldStation/fieldMap). You will participate in field laboratory exercises and class discussions. Field exercises will be based on small group research. They will entail reading assignments that will provide an understanding of foundational information, collection of field data, analysis of data, and presentation of results to the class. Observation is the basis of much of our understanding of biological patterns and processes. You will be required to submit daily field journals in the form of an electronic forum for the class as well as content on local flora and fauna. Expected outcomes include: 1) a fundamental background in some field biology methods that allow for more advanced study of basic and applied principles, 2) ability to formulate a valid hypothesis, set up a test of the hypothesis, gather data, use data to evaluate a hypothesis, and present findings.

COURSE INFORMATION:
Instructor: Dr. Mary Liz Jameson, 512 Hubbard Hall, 978-6798 (office), 350-4452 (cell), MaryLiz.Jameson@gmail.com (please communicate via my gmail account)
Course TA: Taryn Cipra, trw5556@gmail.com
Course website: http://ninnescahlife.wichita.edu
Course textbook: None

LOCATION: This course will take place primarily at Wichita State University’s Ninnescah Biology Field Station near Viola, Kansas (about 40 minutes from campus). Transportation to the Field Station will be provided. University vans will leave from Hubbard Hall parking lot at 8:15 am. At the end of each class session, vans will leave from the Field Station at 2:00 pm and return to Hubbard Hall parking lot (arriving about 3:00).

PREPARATION: We will conduct field exercises regardless of the weather, so come prepared to face the elements! Suitable field attire is required for every class session. You may need to stoop, crawl, get dirty, get wet or get muddy. Long pants and long-sleeve shirts are the best way to avoid biting insects and to minimize sunburn. Lightweight clothing is best for coping with heat, and light colors will help you see ticks. A hat is a necessity to keep the hot sun off your head. Shoes that can get muddy or wet are important; flip-flops and open-toe shoes are not permitted. Note that perfumes and colognes are often attractive to insects. If you are not appropriately dressed, you will be excluded from participating in field activities. A bad case of poison ivy or a horrific sunburn will hinder your ability to participate in class sessions.

For each class, bring the following items (required unless otherwise noted):

| Lunch and snacks | Watch with a display for seconds |
| Water (enough for a full day) | Smart phone or cell phone or access to computer |
| Sunscreen | Digital camera (smart phone or cell phone camera is fine) |
| Insect repellant | Hand lens (optional) |
| Hat | Pocket knife (optional) |
| Change of clothes | Field notebook and writing utensil |

Ninnescah Field Station does not have potable (drinkable) water or vending machines, so it is absolutely essential that you bring enough water and lunch/snacks for the day.

HOW TO SURVIVE AND 8-WEEK, UPPER-DIVISION CLASS: This is a concentrated, immersion, field ecology course. If you miss one class day, you are missing 12.5% of the course. Attendance, completion of assignments, and your research presentation are essential.
1. Come to class prepared.
2. Read assigned papers and field exercises before coming to class.
3. Begin your research presentation … today!
4. Submit assignments, blogs, and class activity by the due date.
LATE ASSIGNMENTS AND MISSED QUIZZES: Late assignments will lose 25% of their score per day, including weekend days. Thus, if the assignment is more than four days late, the grade for the assignment will be zero. There are no quiz make-ups.

GRADING: There are no exams in this course. We will have 6 quizzes during class periods. Quiz questions will focus on assigned reading and important concepts discussed in previous class periods. Assignments (data, results, and discussion from field experiments) will be a component of the grade. Students will turn in assignments that are shared with the group and are used in assembling final presentations. Thus, completion of your assignments is essential for the success of the group. Team presentations will comprise a portion of the grade. For a selected laboratory exercise, small student teams (2 students) will work together to present an overview, results, and discussion of the laboratory field exercise. The team must also lead the class in a discussion of the significance of the research. Community building is emphasized in this course. You are required to submit entries and observations to the Class Blog. To receive full credit, you must submit eight observations with well-formulated hypotheses (that meet criteria for a well-formulated hypothesis) and eight entries that add content to the Species Guide on the class web site.

Grading:
- 6 quizzes (20 points each) 120 points
- Assignments: laboratory data and results (6 laboratories; 20 points each) 120 points
- Team Presentations (160 points) 160 points
- Community Building
  - Class Blog (8 observations/hypotheses; 10 points each) 80 points
  - Species Guide (8 basic observations; 15 points each) 120 points
- Total 600 points

Your course letter grade will be assigned on the basis of the following scale:

<table>
<thead>
<tr>
<th>Percent of Top Score</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-95%</td>
<td>A</td>
</tr>
<tr>
<td>94-90%</td>
<td>A-</td>
</tr>
<tr>
<td>89-87%</td>
<td>B+</td>
</tr>
<tr>
<td>86-83%</td>
<td>B</td>
</tr>
<tr>
<td>82-80%</td>
<td>B-</td>
</tr>
<tr>
<td>79-75%</td>
<td>C+</td>
</tr>
<tr>
<td>74-70%</td>
<td>C</td>
</tr>
<tr>
<td>69-65%</td>
<td>C-</td>
</tr>
<tr>
<td>64-60%</td>
<td>D+</td>
</tr>
<tr>
<td>59-55%</td>
<td>D</td>
</tr>
<tr>
<td>54-50%</td>
<td>D-</td>
</tr>
<tr>
<td>0-49%</td>
<td>F</td>
</tr>
</tbody>
</table>

INCOMPLETE GRADE POLICY: The Department of Biological Sciences has adopted the following policy on the issuance of Incomplete (I) grades – “Before consideration is given to the issuance of a grade of I (Incomplete) to a student who cannot complete all of the course requirements during the normal period of the semester, ALL of the following criteria must be met:
1. The student is unable to complete no more than ONE (1) of the course requirements due to circumstances beyond his/her control;
2. The student must be performing at a level that would warrant the issuance of a passing grade at the time the request for an Incomplete is made;
3. No more than TWO (2) weeks of classes remain in the semester; and,
4. The request is initiated by the student properly completing a Request For An Incomplete form, obtained from the departmental office (537 HH), and securing all of the required signatures.”

WITHDRAWALS FROM THE COURSE: If you encounter personal or academic difficulties, you may withdraw your enrollment in a course on or before the date specified in the official semester calendar as "last day to officially drop a course with a 'W'". Assuming that you decide to withdraw from the course, it is YOUR RESPONSIBILITY to initiate the process, obtain the appropriate signatures, and make sure that the process has been completed by the published deadline.

POLICY ON ACADEMIC HONESTY: The Department of Biological Sciences adheres to the University Policy on Academic Honesty as described in the Undergraduate Catalog, the Graduate Bulletin and the Student Handbook. The penalties for breach of this policy vary with the degree of dishonesty and will be determined by the faculty member teaching the course. Such penalties may range from reprimand to dismissal from the University. Typical first offense penalties include, but are not limited to, receiving a zero on an examination for cheating; receiving zero points for the laboratory portion of the course for cheating on a laboratory examination
(if there is a lab associated with the course); or, receiving a letter grade of “F” in the course for plagiarizing material. Penalties may be more severe in cases of repeat offenses. In all cases, a report of the violation will be placed in the student’s permanent file in the Dean’s office of the student’s College. Students may appeal all disciplinary actions for violations of the Policy by following the procedures of the Court of Student Academic Appeals. For more information about plagiarism, please visit the WSU Library’s “Empower” module on citing published sources http://library.wichita.edu/empower/module6/citingSources.htm.

LAB VOUCHERS AND SUPPLIES: The Field Ecology lab voucher must be purchased from the WSU Bookstore for $40.00. Keep your receipt! You must show your receipt within the first week of class. Other items that may be helpful for the course can be found at the WSU Bookstore or at the Science Education Center (2730 E. Boulevard Plaza, 682-1921).

INSURANCE COVERAGE FOR LABORATORY AND FIELD COURSES: This course will require hiking over rough terrain, on moderate slopes, in ponds, and in rivers. If you are aware of any physical limitation that would prevent your participation in these activities, it is your responsibility to inform the instructor. All students enrolled in this course will be asked to fill out and sign a Consent Waiver prior to the first field trip indicating your awareness of the potential dangers and of the nature of the field work that will be expected of you.

In addition to your personal automobile and health insurance coverage, any student enrolled in this course is covered by the State of Kansas for bodily injury, medical payments, and uninsured motorists when traveling in a State vehicle. THERE IS NO STATE INSURANCE COVERAGE FOR INJURY WHEN TRAVELLING IN A PRIVATE VEHICLE. All students enrolled in this course are covered under a death and catastrophic accident policy having death benefit of $10,000. If you drive a personal vehicle on a field trip, you will need to complete a Departmental Certification form prior to using your vehicle on a class field trip.

TENTATIVE SCHEDULE:

Vans for class leave from the parking lot across from Hubbard Hall promptly at 8:15 am. You will return to the parking lot by about 3:00 pm. This schedule is tentative.

July 5: Conceptual framework for ecology (Ninnescah)
July 7: Global amphibian decline: Chytrid fungus (Wichita area)
July 12: Pollination (Ninnescah)
July 14: Territoriality in dragonflies (Ninnescah)
July 19: Forensics (Skeleton acres)
July 21: Biological Integrity Lab (Ninnescah)
July 26: Nocturnal surveys (Ninnescah)
July 28: Presentations (Ninnescah) and SPTE at 1:30

BLOGGING AND COMMUNITY BUILDING: Field research is often a team endeavor. To increase the efficiency of learning and transfer of information, community efforts are emphasized in this class. Each day, you must record your observations and ideas on the course website (http://ninnescahlife.wichita.edu). This portal will allow us to share what we have learned, develop team-tech tools, and share data. You will be graded on your entries for the Class Blog and the Species Guide. For the Class Blog, you need to share eight observations with accompanying well-formulated hypotheses (that meet criteria for a well-formulated hypothesis; see the first lab “Developing Field Ecology Hypotheses”). For the Species Guide, you need to develop content for eight species of your choice (and for which content has not already been completed). This content should be a synthesis of information about the species (distribution, natural history, behavior, phenology, image, etc.).

GRADUATE STUDENTS: Graduate students enrolled in the course will develop a field laboratory exercise similar to the ones used in the course. Each exercise must be developed for the senior college students and must last 4-5 hours. Laboratory exercises must include: preparation, materials, goal, rationale, background information, methods, data sheets, results and analyses, discussion and significance. This is due on July 29 and will be worth 120 points. Graduate student will be graded on a total of 720 points.

RESEARCH PRESENTATIONS: With another student or by yourself, you will present on one field laboratory on the final day of the course. Each presentation (using PowerPoint) will be 30 minutes including discussion and questions. See the course website for how to prepare a good PowerPoint presentation.

Your research presentation should include a description of the question/research problem you addressed, methods employed, results and insights emerging from your project, and, as appropriate, images, figures, tables, maps, and drawings. Think about how you can best synthesize and share your work with an audience that is interested but knows little about what you have immersed yourself in to develop your presentation. The presentation will be shared on the class web site and will become part of the shared content of the page. This research presentation should include the following sections:

Title: One sentence summary of the paper - should be concise and informative. Include the appropriate taxonomic information about the organism.
Introduction:
- State the purpose of the study and enough background material to demonstrate the significance of the study
- Address the conceptual issues of the research (basic or applied science such as competition, co-evolution, population dynamics, succession, invasive species, reproductive strategies)
- Present your hypothesis and predictions
- Refer to relevant published articles that pertain to your study. What have other researchers learned in investigating similar topics or processes? Start with general background and work to your specific project.
- Cite your references. In science, it is important to know WHO said it and WHEN it was said, so put the author and year in parentheses (Parrish 2004). At least five non-textbook, published, and peer-reviewed sources are required

Methods and Materials:
- Summary of setting of study (date, time, weather conditions, habitat, etc.), equipment and materials used, information about the organism(s) studied, experimental design and procedures used, and statistical methods
- This section must allow other researchers to repeat your experiment (this is a foundation of the scientific method)

Results:
- All data and statistics. Do not include raw, unsummarized data in this section. Raw data should be placed in an appendix. Data should be summarized and analyzed (means, standard deviation, etc.) and presented as visually as possible. Well-constructed graphs are clearer than tables for most data
- Each laboratory exercise has two components, so compare and contrast these
- Graphs, drawings, and tables are presented here
- Explain the results to the audience. Start with overall trends found in the data. For example, say “There were more herbivores than primary producers” and point to the data on the graph that illustrate this fact
- Any explanation, interpretation, or “because” statements should not appear in the results, but in the discussion.

Discussion and Significance:
- This is the meat of your report. You should interpret your results, place them in context, and provide supporting references.
- Compare your results to your hypothesis. Avoid statements not supported by your data.
- Include possible errors in the design and implementation of the study.
- Alternative explanations for the results should also be considered here, as well as alternative hypotheses.
- Compare your results to those of other scientists, and cite their work. Start with the specific (your work) and then go to the general, big picture.
- One or two slides should be your conclusions from the study. What are the main points you want the audience to understand? Your conclusions should be clearly stated.
- Finally, the last slide should discuss the significance of the study (vis a vis theoretical ecology or vis a vis applied ecology)? Additionally, what could be done to improve this research?
- Be prepared to answer questions from the audience and discuss the broad impacts of this research for science and society.

Literature Cited:
- Devote one slide (which you may not show to the audience) to literature that you used for your presentation (at least five sources).
- Citations are by alphabetical order of the last name of the first author listed in each paper, then by date if you cite more than one article by the same author.
- In the sciences, formation of literature citations vary depending on the journal. For your literature cited, use the following format:
  

- Textbooks and encyclopedias do not count, but do cite them if you used them.
- Web articles may count ONLY if they have an author - and ONLY ONE of your three required sources may be from the web. Use current journal articles as much as possible. The quality of your introduction and discussion depends upon good use of literature.

In Addition – Proofread and Use Spell Check!
- Points will be deducted for errors in grammar, spelling, punctuation, and format.