General note: This draft version of the course syllabus is subject to change. Revisions will be posted to the FLBS website as they are received. The final syllabus will be marked final and will be distributed on day one of the course.

Prerequisites: At least one year of college-level biology, a semester of mathematics and some experience with bird identification; or consent of instructor.

Course Description:
This field course focuses on conceptual and practical understanding of advanced techniques in ornithology. You will get experience in bird identification (including molt, aging and sexing), mist-netting and banding, point count surveys, telemetry, recording and bioacoustical analyses. We will read and discuss some key papers in the relevant literature. After successful completion of this course, you will have high-level field research skills in avian biology. These skills would help in your own research, or in getting field research jobs. The instructors are certified trainers by the North American Banding Council, and collectively have over 100 years of experience as avian researchers.

Field Methods in Ornithology (BIOL 495) is an intensive, week-long summer field course available to upper-level undergraduate students and graduate students with interests in gaining hands-on and practical skills pertaining to ornithology and wildlife biology. This course is designed for students who would like to gain advanced field skills that are difficult to obtain from within a traditional academic framework. The 1-credit course includes lectures, classroom discussions, and, primarily, field-based work. Students who take the course will gain high level research skills in avian biology which will assist in conducting independent research or securing field research jobs.

The course provides an applied foundation in various field techniques in ornithology. We will focus efforts of learning practical skills utilized for avian studies such as handling, banding, and extracting birds, taking morpho-measurements, conducting point counts, telemetry, and bioacoustics work. Lectures and in-class discussions will be used to explore topics such as avian survival and productivity; physiology, body condition, and stress hormones; usefulness and applicability of different study methods; life-cycle and molt-cycle of birds; migratory strategies; and avian communication. Field-based work will take place daily and will emphasize an experiential learning environment. Students will have exposure to a variety of species in different habitats. Students will work with instructors to collect data across many technical disciplines and discuss applications of those data.

Graduate students will be required to submit a research paper and literature review on a topic mutually agreed upon by the student and instructors within one month of the end of the course.
**Required Texts:** To be determined.

**Student Learning Outcomes:**
1) Gain conceptual and practical understanding of advanced field techniques in ornithology, including:
2) bird identification: species identification in the field and in-the-hand techniques to differentiate similar species;
3) mist-netting and banding: mist-net set-up, safe handling and extraction, data recording in MAPS format, advanced ageing and sexing, detailed understanding of molt, and safe blood sampling techniques;
4) point count surveys: identification of birds by song and call, standard IMBCR protocol and distance estimation;
5) bioacoustics; and
6) telemetry.
7) Develop hands-on, experiential skills for all field techniques outlined.
8) Gain the ability to apply basic methods and field-based tools for the study of birds and the application of data collection.
9) Gain experience in discussing research and techniques with peers and colleagues.

**Grading:**
Grades will be earned based on three criteria: 1) Regular attendance and participation in lectures, classroom discussions, and delivery of a short presentation; 2) Participation in the field aspects of the course; and 3) Performance of technical skills in the field. Students are expected to attend all lectures, discussions, and field trips and should be familiar with the required reading material as well as have a general knowledge of bird identification. Grades will be weighted as follows for undergraduates:

1) Attendance and participation in class lectures, class presentations, and discussions (and research paper for graduate credit) (50%),
2) Participation in the field (25%),
3) Performance on technical skills in the field (25%).

**Course and Field Supplies/Equipment** (*available for purchase at the FLBS Bookstore)*
- Waterproof field notebook (Rite in the Rain 8.5" by 11")*
- Lab notebook*; binder or clipboard (optional)*
- Pencils*
- Hot/cold mug*
- Reuseable sealed containers for lunch pack-up*
- Laptop computer
- Warm jacket
- Small daypack
- Rain gear
- Water bottle(s) up to 2 liter capacity
- Rubber or waterproof boots
- Breathable, layered clothing for cold mornings and hot days
- Flashlight or headlamp with batteries

**REQUIRED Overnight Field Gear and Other Items to Bring Checklists:** [http://flbs.umt.edu/urls/lists](http://flbs.umt.edu/urls/lists)

**Course Policies:**

Students will adhere to University of Montana Student Conduct Code and Discrimination, Harassment, Sexual Misconduct, Stalking, and Retaliation Policy, which may be accessed at this link:
http://www.umt.edu/safety/policies and to the Biological Station Code of Conduct re: form signed to complete student registration.

Students who have not already completed the University of Montana PETSA training may access the Moodle module at this link: http://www.umt.edu/petsa.

Students must also follow FLBS Rules and Regulations and abide by the Safety Orientation Checklist.

**Schedule:** The schedule will be updated by instructors. Schedules are tentative and subject to change. Early morning departures to the field will occur for this course.

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<th>Date</th>
<th>Topic</th>
<th>Field Site</th>
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Students with disabilities may request reasonable modifications by emailing flbs@flbs.umt.edu or contacting Marie Kohler at 406-982-3301 ext. 221. The University of Montana assures equal access to instruction for students with disabilities in collaboration with instructors and Disability Services for Students. The University does not permit fundamental alterations of academic standards or retroactive modifications.