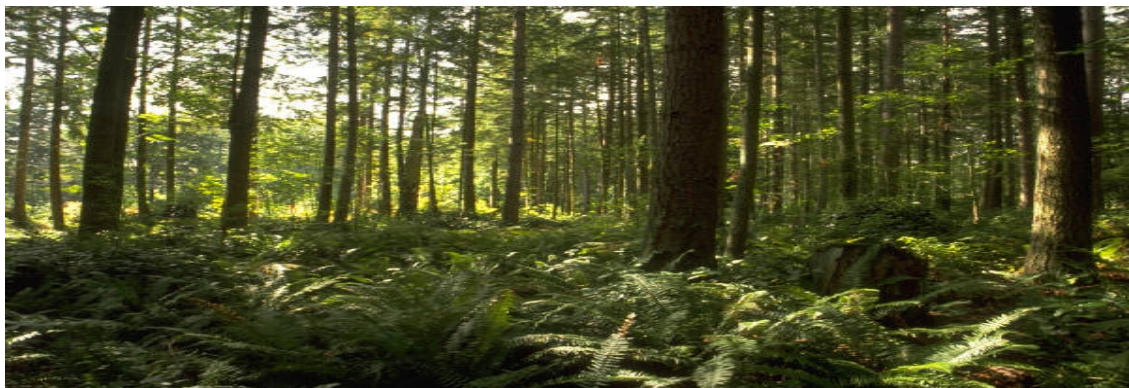


2009  
**FOREST RESOURCES, FISHERIES, WILDLIFE AND  
 CONSERVATION BIOLOGY  
 AUGUST FIELD SESSION**  
**August 9 – August 31**  
 University of Minnesota  
 College of Food, Agricultural and Natural Resource Sciences  
 Cloquet Forestry Center  
 175 University Road  
 Cloquet, MN 55720-9594

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Course website: [www.forestry.umn.edu/courses/fieldsession/index.html](http://www.forestry.umn.edu/courses/fieldsession/index.html)  
 Program Information: FR - Rebecca Montgomery, 612-624-7249, [rebeccam@umn.edu](mailto:rebeccam@umn.edu), 330G GH  
 FWCB - J.L. David Smith, 612-624-5369, [smith017@umn.edu](mailto:smith017@umn.edu), 201E GH  
 Registration Information: Tracene Marshall, 612-625-0266, [marsh318@umn.edu](mailto:marsh318@umn.edu), 10A Green Hall

## 1.0 FIELD PROGRAMS AT THE AUGUST FIELD SESSION

The August Field Session at Cloquet is a unique opportunity for hands-on learning experiences available to students in many majors. To learn more about the Center, visit <http://cfc.cfans.umn.edu>. Two programs are offered at the session and are described in greater detail in subsequent sections.

**All Fisheries and Wildlife majors (Fisheries, Wildlife, and Conservation Biology specializations)** are required to attend the Session and register for the Fisheries, Wildlife, and Conservation Biology Program.

**Forest Resources** majors are required to attend the Session and register for the Forest Resources Program.

**Environmental Sciences, Policy and Management** may register for the Forest Resources Program; however, majors' field experience requirements vary by area of concentration. Students should check their curriculum sheet and/or discuss options with their ESPM faculty adviser or with an adviser in the Student Services Office before registering.

**Biology, Ecology, Landscape Design and other majors** may register for the Forest Resources Program. This program presents an opportunity for undergraduates to gain first-hand knowledge of natural ecosystems. Students enrolled in curricula other than FR, UCF, RRM, and ESPM must obtain permission from the instructor to attend the session.

**Graduate Students** should register for the course designated to the Graduate Program, FR 5161.

## 2.0 WHAT DO STUDENTS STUDY AT THE AUGUST SUMMER FIELD SESSION?

The session is a field experience where students study plants and animals in the natural environment of the Cloquet Forestry Center (<http://cfc.cfans.umn.edu>) and vicinity in forests, lakes, and wetlands. **Students register for all of the courses in one program.**

### 2.1 FISHERIES, WILDLIFE, AND CONSERVATION BIOLOGY PROGRAM

Dates: arrival August 9; classes begin August 10, 8am; classes end August 29, at approximately 3pm; students attend class August 15, no class August 22

#### 2.11 Audience

This program is a requirement in the Fisheries and Wildlife curriculum. Only Fisheries, Wildlife, and Conservation Biology specializations may register for these courses.

The following prerequisites **must** be met before Fisheries and Wildlife majors are permitted to register.

- A. GPA of 2.0 or higher;
- B. Junior status in Fisheries and Wildlife;
- C. Completion of Biol 3407 or Biol 3807, with a grade of C- or better.

#### 2.12 Courses

FW 4106—Important Plants: Fisheries and Wildlife Habitats (1cr)

Students study the field identification of approximately 100+ plant species. They are introduced to plant community concepts and the natural history of selected species. This course strives to teach the special role of many plant species in relation to fulfilling food, cover, nesting, and escape needs.

FW 4108—Field Methods in Research and Conservation of Vertebrate Populations (3 cr)

Planning and implementation of research and management projects collecting and analyzing data in groups, group and individual oral and written reports; each student keeps a field journal.

## 2.2 FOREST RESOURCES PROGRAM

Dates: arrival August 9; classes begin August 10, 8am; classes end August 31, at approximately 3pm; students attend class August 15, no class August 22

### 2.21 Audience

This program is required of all Forest Resources majors. Students are strongly encouraged to take the session before their junior year. Students who plan to transfer to the College of Food, Agricultural and Natural Resource Sciences as juniors **must** attend the session the summer preceding their transfer into the College. This applies to students from community, state, and private colleges as well as students from other collegiate units of the University of Minnesota. The August Summer Field Session is a prerequisite for many Forest Resources courses. ESPM and other majors with interests in forest ecology, resource assessment, and plant taxonomy are encouraged to register for this program. For further information, please consult with your academic advisor.

The following prerequisites are required (RQ) or recommended (RC):

- A. GPA of 2.0 or higher (RC);
- B. Completion of the following courses, or equivalent, with a grade of C- or better:
  1. Biol 1001, 1009 or equivalent introductory biology course (RQ)
  2. Biol 2022 General botany is highly recommended (RC)
  3. One semester of chemistry (RC)

Students registered in this program spend 80 percent of their time in the forests at the Center. They study forest ecology, forest measurements and field botany.

### 2.22 Courses

FR 2101—Identifying Forest Plants (1 cr), P. Splett and A. David, Instructors

Students study the field identification of approximately 120 species of common forest trees, shrubs, and non-woody vascular plants. Students are introduced to the natural history of selected species, and the concepts of plant communities, soil-site relationships, and wildlife values are emphasized. Grading is based on field identification examinations.

FR 2102—Northern Forests Field Ecology (2 cr), R. Montgomery, Instructor

This course introduces students to the natural history of forests of the Great Lakes region with respect to soils, ecological characteristics of trees, community-environment relationships, stand development, succession, and regeneration ecology. As a part of this course they will work in a variety of pine, boreal and hardwood forest types in and around the Center. They will learn to describe forest communities in terms of soils, age, structure, biodiversity, history, productivity, and successional stage. Students will also tour active harvesting operations in the region. By the end of the session students will be able to determine what forests looked like 50 years ago and predict what they will look like 50 years in the future. This course cumulates in a group independent research project. Grading is based on reports, presentations, and a written field and classroom final exam.

FR 2104—Measuring Forest Resources (1 cr), T. Burk, Instructor

This course introduces land survey, tree/forest stand measurement, and forest sampling techniques. It will acquaint students with the use and care of selected instruments and introduce them to the measurement techniques used in field forestry and timber cruising. The course will be presented under the assumption that the students have had no prior exposure to this phase of forestry, either in the classroom or field. Field exercises will be used to teach principles of field measurements and classroom lectures will be used only to the extent needed to get students started on field work. Grading will be based on student reports on six exercises (overview and DBH measurement, surveying, mapping/aerial photography, height measurement, vegetation sampling with fixed-radius plots, timber sampling with variable-radius plots) and a field final exam.

### 2.3 GRADUATE STUDENT CURRICULUM IN THE FOREST RESOURCES PROGRAM

Only Graduate students are permitted to register for FR 5161. This course allows students whose prior background lacks needed exposure to field situations to obtain such experience in an efficient manner. Further information about the course may be obtained from Dr. Rebecca Montgomery (see contact information on cover page).

#### 2.31 Course for Graduate Students

FR 5161—Northern Forest Field Course (2 cr). Prerequisite Grad Student with instructor permission

This course is equivalent to FR2102, FR2102 and FR2104. See descriptions above.

### 3.0 REGISTRATION FOR THE SUMMER FIELD SESSION

Registration is on-line. If you do not fulfill course prerequisites you will need to get a permission number from either Dr. Montgomery (FR courses) or Dr. Smith (FWCB course).

#### 3.1 Students Currently Enrolled in the College of Food, Agricultural and Natural Resource Sciences

Registration for this session begins on **April 7<sup>th</sup>** for admitted students. All students should be sure to complete their Fall registration (which begins on April 9<sup>th</sup>) prior to leaving for Cloquet. There is only one week between the end of the summer session and the beginning of Fall Semester.

#### 3.2 Students Not Currently Enrolled in the College of Food, Agricultural and Natural Resource Sciences

**Non-major students** may register for the Forest Resources or Graduate Field Session if they have completed the prerequisites, but must obtain permission from Dr. Montgomery. Non-major students cannot register for the Fisheries and Wildlife Field Session.

**Non-Degree Seeking students** who wish to attend the August Summer Field Session should contact Tracene Marshall at 612-625-0266 or email [marsh318@umn.edu](mailto:marsh318@umn.edu).

#### 4.0 COSTS—APPROXIMATE TUITION AND FEES

##### 4.1 TUITION (subject to change)

|                        | <u>Resident</u>  | <u>Nonresident</u> |
|------------------------|------------------|--------------------|
| Undergraduate Students | \$1665.36 (4 cr) | \$ 2793.36 (4 cr)  |
| Graduate Students      | \$1741.00 (2 cr) | \$ 2924.00 (2 cr)  |

##### 4.11 Fees (subject to change)

|  |          |
|--|----------|
| University Fee (55.00 per credit) (4cr)                          | \$220.00 |
| Field Studies Health Service Fee (outpatient care, if necessary) | \$30.00  |
| CFANS Information Technology Fee                                 | \$55.00  |
| FR 2102 Transportation, lodging, food, insurance                 | \$864.98 |
| FR 5161 Transportation, lodging, food, insurance                 | \$854.48 |
| FW 4108 Transportation, lodging, food, insurance                 | \$859.98 |
| Equipment/supplies fee (FR students only)                        | \$30.00  |

*\*Students must purchase the Student Health Benefit Plan (hospitalization insurance) unless they already have their own hospitalization coverage. Proof of coverage when registering will exempt you from additional insurance charges. Students currently enrolled in the College of Food, Agricultural and Natural Resource Sciences during Spring semester, and who will be returning in the Fall, are also exempt from purchasing additional insurance. If you are not already insured or will not be returning to the College of Food, Agricultural and Natural Resource Sciences this Fall, you will automatically be enrolled in the University-sponsored plan if you do not have your own insurance.*

A billing statement for tuition and fees will be sent to your student account. These charges must be paid in full by the due date indicated on your billing statement. A late fee will be assessed if payment is not received by that time.

#### 5.0 STUDENT HEALTH

The August Summer Field Session involves sustained physical activity. A medical examination prior to the session is advised. Students who are required to complete the field session, but will not be able to do so due to medical reasons, should contact their administrative department head. Dr. Francesca Cuthbert (612/624-1756), Department of Fisheries, Wildlife, and Conservation Biology or Dr. Alan Ek (612/624-3400) Department of Forest Resources.

Immunization clearance is not required for the session; however, students attending the session should have had a tetanus booster vaccination within the last five years.

The Center does not stock any medications. If you are susceptible to allergic reactions to pollen, insect bites, or stings, etc. **bring your own medication to the session.**

## 6.0 REQUIRED COURSE SUPPLIES

### 6.1 FOREST RESOURCES PROGRAM

The following supplies are not available at the Cloquet Forestry Center. Purchase them before you leave the Twin Cities. Most are available at the Books Underground Bookstore on the St. Paul Campus. For the most part, the expensive items will also be used in other courses and/or in your professional careers.

#### FR 2101 – Identifying Forest Plants

- ✓ Hand lens – Doublet 10x
- ✓ 3 x 5 inch ruled file cards, two packages of 100 each
- ✓ These books are helpful **but not required**.
  - Textbook of Dendrology, Harlow & Harrah
  - Field Guide to Wildflowers, North Central/NE US, Peterson Guide or similar book
  - Forest Plants of Central Ontario, Chambers, Legacy and Bentley
  - Northland Wildflowers, John & Evelyn Moyle
  - Wetland Plants and Plant Communities, U.S. Army Corps of Engineers

This class may visit bog, lowland, and other wet sites. Appropriate footgear, such as rubber boots or Gore-tex boots, etc. is recommended.

#### FR 2102 –Northern Forests Field Ecology

- ✓ Two inch or 1.5 inch wide, three-ring binder
- ✓ Any books on natural history of Great Lakes ecosystems, field guides or ecology textbooks are helpful **but not required**.

#### FR 2104 – Measuring Forest Resources

- ✓ Hand Compass, **This is required. Do not come to Cloquet without one.** The compass you bring must be a precision instrument for running land lines. There are three important features to look for when purchasing a hand compass for serious field use. The compass must have 1] a liquid filled housing which dampens the swing of the needle, 2] a mirror cover which enables accurate sighting of lines, (Without such a cover you will be at a considerable disadvantage in completing the compass related exercises at the session.), and 3] the ability to automatically adjust for magnetic declination (without this feature you must do the adjustment in your head). We have found that using compasses lacking these features adds significant and undesired confusion to the process of learning compass and pacing/traversing skills. The Silva Ranger and Suunto MC-2 have all three features. We highly recommend either of these two compass types. The Silva Ranger compass has long been popular with foresters and other natural resource professionals.

The Silva and Suunto companies make several models of compasses. You must have the correct model. (See model numbers below.) The compass may be graduated in either azimuth or quadrants; the azimuth graduation is preferred. A compass is a once in a lifetime purchase which you will use throughout the Cloquet Field Sessions and for your entire career.

Both Silva and Suunto compasses are available at:

Ben Meadows Company (1-800-241-6401)  
[www.benmeadows.com](http://www.benmeadows.com)  
#101924 Silva Ranger (azimuth)  
#101884 Suunto MC-2 (azimuth)

Forestry Suppliers, Inc. (1-800-647-5368)  
[www.forestry-suppliers.com](http://www.forestry-suppliers.com)  
#37036 Silva Ranger (azimuth)  
#37185 Suunto Navigator MC2DAZ/IN (azimuth)

- ✓ "Rite in the Rain" spiral notebook (field pattern – 64 pages) "Rite in the Rain" notebooks will be available FOR PURCHASE at the Cloquet Forestry Center.
- ✓ Clipboard or sheet holder (clipboard with lid or compartment) to protect pages when carrying through the woods) to hold 8 1/2 x 11 inch paper.
- ✓ Clear plastic bags to protect notes in rainy weather. You will be writing in the rain.
- ✓ Pencils and pens for note taking and report writing
- ✓ Colored pencils (four colors)
- ✓ 8 1/2 x 11 inch ruled white composition paper
- ✓ 8 1/2 x 11 inch University Bookstore No. 4 cross-section paper (20 divisions per inch or equivalent), 15 sheets
- ✓ 1/2 inch celluloid ruler marked in inches and tenths
- ✓ Insect repellent
- ✓ Sun protection
- ✓ Dictionary
- ✓ Calculator
- ✓ Footwear appropriate for walking on uneven ground, through dense brush, and when the soil and vegetation are wet and soggy
- ✓ If you already have an ecology textbook or plant identification handbook, you may wish to bring them with you. They are not required.

FR 5161 – Northern Forest Field Course

- ✓ Supplies listed under FR 2101, FR 2102, and FR 2104 apply to FR 5161

6.2 FISHERIES, WILDLIFE, AND CONSERVATION BIOLOGY PROGRAM

FW 4106 – Important Plants in Fisheries and Wildlife

- ✓ Hand Lens – Doublet 10x
- ✓ Pocket knife or similar sharp tool
- ✓ 3 x 5 inch ruled file cards, one or two packages of 100 each
- ✓ Boots, water proofed to the ankle for bog and wet area walks. Many students prefer rubber knee boots.
- ✓ These books are helpful **but not required**.  
Field Guide to Wild Flowers, North Central/NE US, Peterson Guide or similar book  
Wetland Plants and Plant Communities, U.S. Army Corps of Engineers  
Wildflowers of Minnesota, Stan Tekiela, or similar book

FW 4108 – Field Methods in Research and Conservation of Vertebrate Populations

- ✓ Fish, mammal, and bird field guides (optional)
- ✓ Binoculars
- ✓ Digital camera (optional)
- ✓ Rain suit (required)
- ✓ Chest waders (required)
- ✓ Summer sleeping bag (required)
- ✓ Sleeping mat (required)
- ✓ Tent (required, but discuss with student colleagues arrangements to share tents)
- ✓ A reasonably small duffel bag for 2 night field trip
- ✓ Two orange Elan E64-8 x 4 inch field notebooks (required)
- ✓ One Silva or Suunto mirror-sighting compass (required; see page6 for compass information.)
- ✓ GPS (optional)

## 6.3 ALL PROGRAMS AND COURSES

### 6.31 Personal needs

- ✓ Pillow cases, bed linen and blankets must be furnished by students; pillows and mattresses are provided at the station
- ✓ Field clothes adequate for protection against cold and rain.
  - waterproof hat, jacket, pants, and waterproofed boots are an absolute necessity because field work is carried out regardless of the weather.
- ✓ Any other clothing deemed necessary for a 3.5 week field course
- ✓ Toiletries
- ✓ Any medications including kits for insect stings, bee stings etc.

## 7.0 HOUSING

### 9.1 Where do you live?

Housing will be on the Center in recently remodeled dorms. There are several room options including 2 person hotel style rooms, 4 person rooms with shared bathroom, and an 8 person dorm with shared bathroom. Camping facilities are not available. Students must live on the Center because it greatly simplifies schedules and group assignments, and provides a better learning experience.

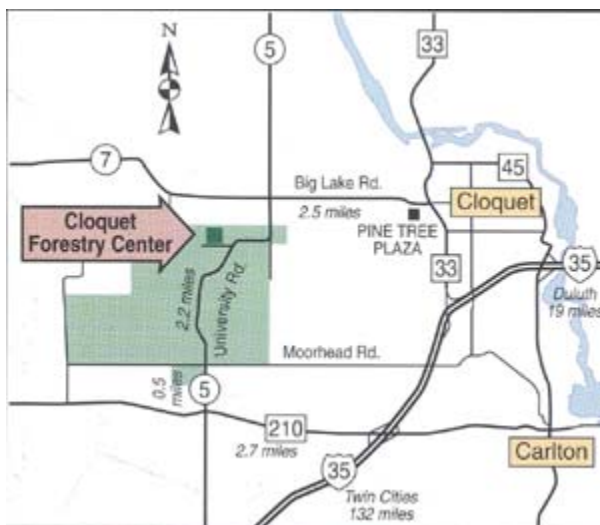
Shared occupancy is required. Students are responsible for room clean-up prior to departure at the end of the course.

### 9.2 Dorm rules

Please respect the buildings. **Do not deface** any walls by carving or writing. **Do not** put nails or tacks in the walls. Abnormal breakage or damage to dormitories or dorm rooms will be assessed against the individuals involved. **Do not wear** hobnail or calk boots in buildings. **Do not** move any beds or furniture from one area to another.

## 8.0 LOCATION

The August Summer Field Session is held at the University of Minnesota Cloquet Forestry Center in Northern Minnesota. Information about the center can be found at <http://cfc.cfans.umn.edu/>. For directions see <http://cfc.cfans.umn.edu/about/maps.html> or the map below.



## 9.0 ARRIVAL AND DEPARTURE

### 9.1 Check-in

All students must arrive on **Sunday, August 9**, between 2:00 p.m. and 5:00 p.m. Dinner will be served at 5:45 PM with orientation to the 2009 session at 7:00 p.m. that same evening in the Auditorium (Building #49). Upon arrival at the station, students should check-in with University staff. Students will be housed on a first come first serve basis. If you want a particular room arrangement plan to arrive earlier rather than later! Park your car in the large visitor parking area behind the administration building.

### 9.2 Class Schedule

Class will begin at 8:00 a.m. on Monday, August 10. End dates are given above for each session. In fairness to all students attending the session, requests for early releases to accommodate personal plans will not be approved.

Classes are from 8:00 a.m. to 12:00 p.m. and 1:15 p.m. to 5:15 p.m., Monday through Saturday. There will be no classes on Sundays and one Saturday will be free.

### 9.3 Meals

Students are expected to eat their meals in the Dining Hall. The meal schedule is indicated below. The lodging and meals fee covers all meals served; there is no refund for meals missed.

|                         |            |            |           |
|-------------------------|------------|------------|-----------|
| Monday through Saturday | 7:00 a.m.  | 12:15 p.m. | 5:45 p.m. |
| Sunday                  | 10:00 a.m. |            | 5:00 p.m. |

**You are encouraged to bring your own reusable travel mugs for coffee and beverages to go.**

## 10.0 MISCELLANEOUS

### 10.1 Telephone

The Cloquet Forestry Center office number is 218/726-6400. In addition, several courtesy telephones are located throughout the center. In the hallway across from the classroom of the Administration Building, 218/726-6488; in the porch outside of the dining hall, (218/726-6489; and in the kitchen units of cabin #45, 218/726-6492 and cabin #46, 218/726-6493.

### 10.11 Computer

A 24-station computer lab is available to students for class assignments, e-mail, and Internet access via a T1 line. The computer hard drives are write-protected, so bring a flash drive to save personal files (e.g. reports, assignments, etc.). The session usually includes 60-70 students. Students with laptops may choose to bring them to the session. There is wireless internet in parts of the station.

### 10.12 Mail

Mail can be sent to the Forestry Center using the following address. Mail arrives between 2:00 and 4:00 p.m. daily.

Cloquet Forestry Center  
175 University Road  
Cloquet, MN 55720-9594

Outgoing mail can be placed in a box on the table located outside the office on the upper level of the Administration Building (#44). It must be placed in the box by 4:00 p.m. each day.

10.13 Laundry

There are two washing machines and dryers at the station for student use. Two laundromats are located in the City of Cloquet.

10.14 Alcoholic Beverages

Absolutely no alcohol is permitted at the Center. Violators will be removed from University housing.

10.15 Pets

Pets are not permitted—do not bring them! This policy is rigidly enforced.

10.16 Firearms

The Cloquet Forestry Center is a game refuge and the discharge of firearms is prohibited by state law.