



**MISSISSIPPI STATE UNIVERSITY™**  
COLLEGE OF FOREST RESOURCES

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**2016-2017**

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UNDERGRADUATE HANDBOOK

# PREFACE

This handbook has been prepared for undergraduate students and advisors in the College of Forest Resources (CFR) at Mississippi State University (MSU) and contains information that will assist students in their progression towards the Bachelor of Science (B.S.) degree. This information is provided to answer questions which may arise during a student's academic endeavors.

The ultimate responsibility for meeting graduation requirements and decisions on course selection resides with the student. Specifically, responsibilities of the student are to:

- be aware of and understand degree requirements of his or her chosen major and concentration;
- be aware of and understand the MSU, CFR, and departmental policies, procedures, and academic calendar and meet all relevant deadlines;
- meet all requirements of the degree program being pursued; and
- maintain regular contact with his or her faculty advisor.

The responsibility of the faculty advisor is to provide effective counsel to the student on academic matters regarding curriculum and career decisions.

This handbook is intended to supplement the MSU Bulletin. This handbook may include changes or requirements not found in the MSU Bulletin. Each student should retain a copy of the MSU Bulletin and the CFR Undergraduate Handbook that contains the curriculum year he or she is following. Students are expected to bring this handbook to academic appointments.

Questions should be addressed to Students Services Coordinator, Office of Student Services. 129 Thompson Hall, Mississippi State, MS 39762, 662.325.9376

**This handbook presents information that, at the time of preparation, most accurately described courses, curricula, degrees, policies, procedures, regulations and requirements of the College of Forest Resources.**

**No contractual relationships can be established between students, the College of Forest Resources, and the University upon the information contained herein. The CFR reserves the right to delete, substitute, change, or supplement any statement in this handbook without prior notice.**

HANDBOOK REVISED AUGUST 2016

Discrimination based upon race, color, religion, sex, national origin, age, disability, or veteran's status is a violation of federal and state law and MSU policy and will not be tolerated. Discrimination based upon sexual orientation or group affiliation is a violation of MSU policy and will not be tolerated.

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# INTRODUCTION

The College of Forest Resources is one of eleven colleges and schools at MSU. The CFR was founded in 1954 as the School of Forestry to provide teaching, research, and service opportunities about forests and associated renewable natural resources for the state, region, and nation. Since then, the CFR has earned a national and an international reputation as a center for science and education programs in natural resources management and use.

The CFR has unique responsibilities to fulfill the goals of Mississippi State University through programs focused on Mississippi's most important renewable natural resources: forests and their products, fisheries, wildlife, and water. In doing so, the CFR's mission is to promote the professional and intellectual development of its students; expand through research the fundamental knowledge upon which the natural resource disciplines are based; and assist with development and utilization of the forest, wildlife, fisheries, and water resources of the state and nation through applied education, research, service, and technology transfer activities.

The vision of the CFR is to be recognized as preeminent in teaching, service, and outreach in forest products, forestry, wildlife and fisheries in the United States.

*Most academic forms for students are available on the web at <http://www.cfr.msstate.edu/students/current> or in the Student Lounge, Room 131, Thompson Hall.*

*Jobs, internships, and summer employment opportunities are posted on the CFR Jobs Database on the web at [www.cfr.msstate.edu/jobs](http://www.cfr.msstate.edu/jobs). The CFR also maintains an e-mail list of job postings. To subscribe, send a message to [sympa@lists.msstate.edu](mailto:sympa@lists.msstate.edu) and include in the subject line: [msucfrjobs@lists.msstate.edu](mailto:msucfrjobs@lists.msstate.edu), first name, last name. Leave the body of the email blank. Scholarship opportunities, CFR student organization notices, and other academic related information are posted on the bulletin boards in the Student Lounge and are forwarded electronically to students' MSU e-mail address .*

*A microwave and vending machines are available to students in the Student Lounge.*

The CFR is housed in Thompson Hall and the Forest Resources Complex, both state-of-the-art facilities, surpassing the facilities of most natural resource education programs in the nation. The specialized teaching and research facilities available to the CFR's education program include three computer laboratories with over 60 PC workstations. The Measurements and Spatial Technologies Laboratory (MSTL) is equipped with workstations and servers that provide software functionality for remote sensing/ image analysis and geographic information systems (GIS). CFR resources and facilities also include the 8,200 acre John W. Starr Memorial Forest, located nine miles from campus; the 1,200-acre Sharp Forest in northeastern Mississippi; captive animal holding facilities; the Franklin Furniture Building; and the Forest and Wildlife Research Center. Research and instruction activities also use the Noxubee National Wildlife Refuge and the Tombigbee National Forest, both located adjacent to the John W. Starr Memorial Forest.

# SECTION I: GENERAL INFORMATION AND COLLEGE-WIDE POLICIES

## ACADEMIC ACHIEVEMENT

Full time students completing at least twelve hours (with no incomplete grades nor grades lower than a C) in a regular semester who earned a GPA of 3.80 or higher are President's Scholars. Dean's Scholars are students who earned a GPA of 3.50 to 3.79.

Students who have completed 60 hours of their degree at MSU and earned high GPAs on both MSU and cumulative coursework will receive the following recognition at graduation: Summa Cum Laude: GPA 3.80 or higher; Magna Cum Laude: GPA of 3.60 to 3.79; or Cum Laude: GPA of 3.40 to 3.59.

## ACADEMIC AMNESTY

The Academic Amnesty program is designed to provide students with an opportunity to have past grades of "D" and/or "F" eliminated from the computation of his or her grade point average at MSU. Courses included in Academic Amnesty are not applied toward graduation. To be eligible for this program, students must have a total of five years' continuous nonattendance in any post-secondary institution of higher education. Students may request Academic Amnesty at any time after admission or re-admission to MSU until the end of the semester preceding that in which the student graduates. The new grade point average will be noted on the transcript upon successful completion of at least 12 hours at MSU. This is an MSU policy and may not be honored at other institutions of higher learning.

## ACADEMIC FRESH-START

Students who have not been enrolled in a post-secondary institution of higher education for at least 24 consecutive months may petition for Academic Fresh-Start. All credits will be eliminated from the student's grade point average and may not be used toward graduation at MSU. The student's transcript will reflect the course work, but will contain a notation declaring the course work void for the purposes of academic standing and graduation. The notation will be on the transcript upon successful completion of 12 hours at MSU. This MSU policy may not be honored at other colleges and universities.

## ACADEMIC FORGIVENESS

Effective Fall 2004, for MSU courses taken during or after Fall 2003, students will be permitted to retake up to two courses, not to exceed 8 hours, in which he or she made a "B", "C", "D" or "F", with the original grade remaining on the transcript but not counted in the student's GPA. The second grade will be computed in the GPA, regardless of which of the two grades is the higher. A student may only retake a course once under this policy and it must be taken at MSU. Students may not retake a course in which an "F" was received as a sanction for academic misconduct.

To invoke this policy, the student must submit an electronic retake request form to the Registrar by the deadline on the last day to add a course. The electronic form can be requested when the student is in the My Banner system. The CFR Student Services Office will be notified electronically that retake requests have been registered and will have the opportunity to review the requests.

Any retake requests not processed by the home department within five business days of the last day for submitting requests will be implemented automatically.

## ACADEMIC STANDING

### Academic Probation

Students whose cumulative MSU GPA is less than 2.00 at the end of any term will enter the next term on academic probation and will remain on probation until the GPA reaches 2.00 or higher. The course load for students on probation is restricted to 14 credit hours; a student on academic probation who enrolls concurrently in excess of this limit in correspondence courses or at another institution will not receive credit at Mississippi State University for such courses.

### Academic Suspension

Students with a semester GPA of 2.0 or less who have attempted at least 24 hours of coursework at MSU AND who fail to meet the following MSU cumulative GPA requirements will be suspended.

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Classification	Earned Hours	MSU Cumulative GPA
Seniors	90 or more	2.0
Juniors	60–89	2.0
Sophomores	30-59	1.8
Freshmen	29 or fewer	1.6

No student will be suspended for failing to achieve the required GPA without first having had at least one semester of probationary notice (not necessarily the immediately preceding semester).

Academic suspension shall be for at least one regular (fall or spring) semester. For students suspended at the end of a spring semester, the suspension precludes enrollment in any summer school session as well as the following fall semester. The student will be readmitted on academic probation following the expiration of the first suspension. A student who attends another university during a suspension from MSU must maintain a 2.0 GPA (calculated by MSU standards) on any transfer work. Students who fail to meet these criteria may be readmitted only on the recommendation of their college and with the approval of the Provost. A student may continue in school during the second term of summer session, irrespective of his or her record during the first term.

Typically, once placed on academic suspension, a student must sit out of the university for a semester. However, as an alternative, the Office of the Provost and The Learning Center have designed a program that allows students on academic suspension to stay in school and improve their academic standing and progress. Housed in The Learning Center, the Learning Skills Support Program (LSSP) provides techniques that prepare the student to be academically successful in the future.

If a student's academic advisor and the Associate Dean of CFR (or Student Services Coordinator) agree on this option, a student will be allowed to enroll that semester, rather than sitting out. However, should the student be denied early readmission, the program is still an option for the student upon his return after sitting out his required semester.

The Petition for Early Readmission after Suspension (Form A-fall/spring; Form B-summer) can be found at: <http://www>.

[provost.msstate.edu/resources/students/forms/](http://provost.msstate.edu/resources/students/forms/)

There are four main requirements a student must fulfill as a participant in the LSSP, and they are as follows:

1. Meet with the LSSP Coordinator three times a semester
2. Meet with his/her academic advisor twice a semester
3. Complete a specified section of LSK 1033—Fundamentals of Achievement
4. Maintain a semester GPA of 2.00 or higher during their LSSP participation

### Academic Dismissal

A student who has one academic suspension and does not earn a current semester GPA of 2.00 or higher and has less than the required MSU cumulative GPA listed under the Academic Suspension rules will be dismissed. A student who has been dismissed is not automatically or routinely readmitted. A student may submit a written petition for readmission to their college after one calendar year's absence. The College may, upon recommendation from the student's advisor and department head, approve readmission.

### ACCESS TO THOMPSON HALL

Undergraduate students currently enrolled in CFR academic programs may use their MSU ID card for access to Thompson Hall and Thompson Hall computer labs. Access is granted after the tenth day of the semester by the CFR Student Services Coordinator. Students should email the CFR Student Services Coordinator if their IDs are not allowing building access.

### ADMISSION REQUIREMENTS

Freshmen who meet MSU admission requirements will be admitted into the CFR.

Students transferring from another accredited senior or community college of higher learning who meet MSU admission requirements and wish to pursue a major in the College of Forest Resources and have a 2.00 or better GPA will be admitted into a major and a concentration within the College.

### ADVISING

A faculty advisor will be assigned to each student after the tenth day of the semester. The faculty member remains



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as the student's advisor throughout his or her academic career at MSU unless: (1) the student changes major/concentration; or (2) a change in advisee or advisor is requested. Students should check mystate to find their CFR advisor's name. Faculty offices and phone numbers are listed in the appendix of this document.

The advisor will, upon request by the student:

1. guide progress in the major/concentration chosen within the CFR;
2. offer specific course suggestions for a given semester (see Schedule Preparation/Registration);
3. make referrals to appropriate CFR and University resources for personal counseling, career guidance, or other assistance;
4. provide advice on career objectives and opportunities.

### ADVISOR CHANGE

Changing faculty advisors requires the signature of the student, the prospective advisor, and the Coordinator of the CFR Office of Student Services. Permission to change to another advisor is granted on an individual basis depending on circumstances explained by the student. Students can acquire a Request for Advisor Change form on the CFR web site.

Students may be reassigned for reasons such as advisee ratio; faculty sabbaticals, faculty turnover, etc. In these cases, students will be notified via e-mail regarding the new advisor assignment.

### APPLICATION FOR DEGREE

The student must apply for graduation at the beginning of the semester in which he or she expects to graduate through their MSU Student Account following the link to Application for Degree. The deadline is listed in the Academic Calendar. Students must have a graduation audit completed in the CFR Office of Student Services 2 semesters before graduation (see Graduation Audit).

CFR students earn a Bachelor of Science degree with one of the following majors: Forestry, Sustainable Bioproducts or Wildlife, Fisheries and Aquaculture . Students should check to ensure his or her concentration is correct and

should indicate a minor if pursuing one.

### BIOLOGY MINOR

CFR students take many courses in their programs that are required in the Biology Minor. The following table indicates, by concentration, extra courses students need to earn a Biology Minor. **ALL** WFA WLVM (4-year Pre-Vet) students should declare the Biology Minor. Students pursuing a minor must indicate their intention when applying for graduation in Banner.

Additional courses CFR students can take to meet the Biology Minor Requirements:	
Concentration	Additional courses required
FO WFMG	Cell Biology, Microbiology, Chemistry II and Lab, & Genetics
WFA CLE	Cell Biology, Microbiology, & Genetics
WFA HWC	Cell Biology & Microbiology
WFA WLAC	Cell Biology & Microbiology
WFA WLFS	Cell Biology & Microbiology
WFA WLVM	<b>None. Declare the minor.</b>
WFA PVSF	Cell Biology

### CALENDARS

Students can access calendars on the Mississippi State University web site: [www.msstate.edu](http://www.msstate.edu). The Academic Calendar contains important deadlines that students must follow such as deadlines to drop or add classes, to withdraw from classes, to apply for graduation, etc. The Examination Schedule, MSU Calendar of Events, and other calendars are located at the same web site.

### CAREER CENTER

Job search assistance and career counseling are provided for students and alumni through the Career Center. Assistance with interviewing, résumé development, career planning, job search seminars, and salary information is available.

CFR students should register with the MSU Career Center as soon as possible upon admittance to a degree program in the College of Forest Resources. Prospective employers continually review résumés on the MSU Career Center web

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site: <http://www.career.msstate.edu>. The Career Center is located at 300 Montgomery Hall, 662.325.3344.

In addition, students are encouraged to review the CFR Jobs Database on the web site: [www.cfr.msstate.edu](http://www.cfr.msstate.edu). Students should check their e-mail accounts for job announcements as well.

### CHANGE OF MAJOR/CONCENTRATION

A student changing from one college to another must complete all arrangements for the transfer prior to beginning the new course of study. Before making the change, the student must initiate a Change of Major form in the new major's college. Transfer to a new major is subject to approval by the new college. Change of Majors are signed and processed by the CFR Office of Student Services in 129 TH.

Students changing majors must meet the requirements listed in this handbook and in the MSU Bulletin that is current at the time they make the change.

To initiate a change of major or concentration within the CFR, a student must complete a Change of Major form and meet admission requirements for the chosen major to which he or she wishes to change. These forms are available in the Office of Student Services, Thompson Hall 129.

### CLASS ATTENDANCE

A student assumes responsibility to attend class and complete assignments when he/she enrolls in a course. When absence from class is essential, the student is responsible to make arrangements satisfactory to the instructor with regard to work missed. These arrangements should be made prior to the absence when possible. Excused absences as identified by the university include: participation in an authorized university activity; death or major illness in the immediate family; illness of a dependent; participation in legal procedures; religious day; illness that is too severe or contagious to attend class; required military duties; and mandatory admission interviews for professional/graduate school. It is the student's responsibility to secure documentation. Medical documentation must contain the date and time the student had treatment. Based upon this, the instructor will decide whether makeup work will be

allowed.

Absences become part of the student's file. Instructors may report absences to the Division of Student Affairs at any time they feel it appropriate to do so and are expected to report students with continued consecutive absences. Although instructors are asked to record absences, some place more emphasis on the number of absences permitted than others. Students should strive to attend all classes.

Research at Mississippi State University (McMillen unpublished data) has found a high correlation between class attendance and grade point average (the more absences students have, the lower the GPA).

### CLASSIFICATION OF STUDENTS

Mississippi State University classifies students according to the total hours passed as follows:

All majors in the CFR have been designed for completion in four years, or eight semesters (plus one Summer Field Program for Forestry majors). However, students must be aware that failure to schedule and complete full loads (i.e., 15-16 credit hours or more per semester) will result in extra semesters required to complete degree requirements. For example, a student scheduling 14 credit hours each semester will require 9 semesters; 12 hours will require 10 semesters.

Most CFR classes are offered once a year or every other year. Students should keep this in mind when planning their program. Failure to enroll in a course, or a pre-requisite/co-requisite, the semester it is offered can delay graduation by a year.

MSU student classification according to total hours passed:	
Seniors	90 + semester hours
Juniors	60-89 semester hours
Sophomores	30-59 semester hours
Freshmen	29 or less semester hours

### COLLEGE LEVEL EXAM PROGRAM CLEP)

CLEP credit can be applied per MSU policy. A list of MSU courses accepted by CLEP credit can be found in the MSU

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Bulletin. The number of CLEP hours that can be applied to a degree is limited to one quarter of the total number of hours required for a degree.

### COMPUTER LABORATORIES

The CFR maintains three computer labs for use by CFR students. They are located in rooms 308 Thompson Hall Annex, 137 Thompson Hall, and in the Franklin Center Room 110. Maintenance costs prohibit use of the labs by students from other majors, unless approved by administration for special circumstances.

A CFR lab account is required to access the computer labs. Your lab account username will be set to your Net ID. A password change is forced upon first login. Passwords must be 8 characters or longer. Instructional material on changing passwords is available at [www.its.cfr.msstate.edu/faq.asp](http://www.its.cfr.msstate.edu/faq.asp). If you have problems logging in, please contact CFR IT Support at the CFR help desk: e-mail - [helpdesk@cfr.msstate.edu](mailto:helpdesk@cfr.msstate.edu), phone 325.2140 or stop by Room 139 Thompson Hall.

The a308 and 137 Thompson Hall computer labs are open except for scheduled class usage times. The Franklin Center computer lab is open Monday-Friday, 8:00 am to 5:00 p.m.

Labs are closed Saturdays, Sundays and University-sanctioned holidays. Student access to Thompson Hall and Franklin Center before 8:00 am and after 5:00 p.m., when it is locked, is selectively provided via a card-reader system (see Access to Thompson Hall).

Students experiencing problems during the work day should contact their instructor who will determine if the problem is usage-related or computer-related. If the problem is computer-related, the student or instructor should contact CFR IT Support at the CFR help desk: e-mail - [helpdesk@cfr.msstate.edu](mailto:helpdesk@cfr.msstate.edu), phone 325.2140 or stop by Room 139 Thompson Hall.

Students experiencing problems in a CFR lab outside of the workday should send an e-mail to the CFR help desk: [helpdesk@cfr.msstate.edu](mailto:helpdesk@cfr.msstate.edu). It is important that the student also contact the class instructor the next workday to make

sure the problem is not usage-related. The e-mail message to the CFR help desk should contain the student's first and last name, Net ID, course and instructor's name, software package being used when the problem occurred, a thorough explanation of the problem, and which lab, computer and/or printer was being used.

Other regulations that students must observe in the CFR computer laboratories include:

- Absolutely no software shall be installed on the lab computers without prior approval by the IT Staff. This includes software such as Yahoo Messenger, AOL instant messenger, games and shareware programs. Also, do not download music, pictures or movies to CFR computers. Sharing copyrighted music is illegal, and punishable under the Federal Digital Millennium Copyright Act. When you illegally share music it places you, as an individual as well as the University, in a seriously liable situation. Offenders will be reported to the proper authorities.
- Do not share your CFR lab account username and password. You are accountable for the security of your account.
- Students should log out of the computer before leaving the lab.
- Students must bring their own paper for use in the laser printers, staff will not provide paper. The paper must be laser printer quality, as any other kind of paper will damage the printers.
- Notices are posted on lab bulletin boards identifying times and days the labs will be inaccessible due to classes or CFR events.
- Files should be saved to a USB drive. Files are frequently erased from the lab computers.
- Discs and other storage devices/media brought into the lab must be scanned for viruses prior to each use. Suspected viruses should be reported immediately to the CFR help desk.
- Accessing sexually explicit material is strictly forbidden and will result in disciplinary action by the MSU Dean of Students.
- Food, drink or any form of tobacco is not allowed in the CFR computer laboratories.

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- CFR computer labs may experience down times when problems arise. Such downtimes may affect individual lab computers and printers or entire labs and could last for indeterminate periods of time. CFR labs can experience heavy loads throughout the semester. It is the student's responsibility to plan for such occurrences; students are advised to not procrastinate on assignments.

Blatant disregard for the above regulations may result in suspension of computer privileges and/or other disciplinary actions from the MSU Dean of Students.

### CONCURRENT ENROLLMENT

Concurrent enrollment (enrollment at MSU and elsewhere during the same semester) requires prior approval and the signatures of the student, advisor, and Coordinator of the Office of Student Services. Students may acquire a Transfer Request form on the CFR web site (see Transfer Credit).

### COOPERATIVE EDUCATION

Cooperative Education (Co-op) is a unique learning opportunity that combines classroom training with practical experience to broaden a student's educational experience. Generally, a student will alternate between school semesters and work semesters. Students gain valuable on-the-job training while progressing academically through their degree programs. With successive work semesters, employers usually increase the student's work responsibilities and performance expectations. Work experienced through the Co-op program is rated highly by prospective employers.

Students must complete a minimum of one year at MSU and establish at least a 2.50 GPA before entering the Cooperative Education program. However, most forestry employers prefer students who have completed the forestry Summer Field Program. Students are expected to complete a minimum of three work semesters. Students can transfer one semester of Co-op from a community college toward the three semesters required. Co-op credit hours are not used to satisfy degree requirements. Contact the Cooperative Education Office, 335 McCain Engineering

Building, 662.325.3823, or visit: <http://www.coop.msstate.edu>.

### CORE GPA COURSES, DEPARTMENT/MAJOR

The academic departments define their major and concentration courses. Refer to the respective CFR Department for specific policies regarding core courses (see Section II: Department-Specific Policies).

Transfer credits (see Transfer Credit) that are equivalent and are applied to the major and to the concentration core requirements, as defined by the department, are included in the department's core GPA.

### COUNSELING AND TESTING SERVICES

The Counseling Center offers personal, group, family and career counseling to students regarding personal concerns, study skills, interpersonal skills, and career choices. The Center offers crisis intervention 24 hours a day, seven days a week. After hours, counselors may be reached by contacting the University Police. Counseling Center services are free and confidential. Counseling Center is located at 101 Lee Hall or students can call 662.325.2091 or visit: <http://www.msstate.edu/dept/cts> for an appointment.

### COURSE LOAD

The number of hours that can be taken in a semester is based on the MSU GPA. Students on probation are limited to 14 hours; students with a GPA between 2.00 and 2.99 are limited to 19 hours; students with a GPA above 3.00 may take more hours with permission from their advisor and the CFR Student Services Office.

### COURSE NUMBERING

All course numbers consist of four digits, of which the first (left) digit indicates the level of preparation required (1=Freshmen; 2=Sophomore; 3=Junior; 4=Senior) and the fourth (right) digit indicates the number of semester hours. For instance, WFA 4353 is a senior-level course worth 3 semester hours.

### CURRICULUM/CATALOG LIFE

Freshmen follow their major's curriculum (including course

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requirements, policies, and procedures) that is in place the year they first enroll at MSU provided they graduate within seven years. There is a seven year limit on the completion time for undergraduate students at MSU.

On-campus transfer students from MSU or from another major within the CFR are required, by MSU policy, to follow the curriculum in place the year the student changes to the new major. Students, in consultation with their faculty advisor, may move to a newer curriculum (including that year's policies and procedures in addition to the newer course requirements); but can not move to an older curriculum. Students wishing to move forward in curriculum years must process a Request to Change Curriculum Year Form in the CFR Office of Student Services, 129 Thompson Hall.

Curricula examples and CFR Undergraduate Handbooks are on the CFR web site. If a WFA student stops out (not continuously enrolled in back to back semesters) and returns to college within one year, the student may follow their original curriculum year. If the student returns after more than one year of absence, then the student must move forward to the newest curriculum. In conjunction with MSU policy, if a FO student interrupts his/her enrollment at MSU for two consecutive years or longer, the graduation requirements stated in the catalog under which the student resumes enrollment apply.

### **DIRECTED INDIVIDUAL STUDY**

A Directed Individual Study (DIS) course provides an educational and professional experience that is equal to or greater than the equivalent rigor and hours of a regular class. Forms are available on the CFR web site. Once all appropriate signatures are secured, the student should submit the DIS form to the Coordinator in the CFR Office of Student Services.

The Office of Student Services will create the course in the registration system. After the course has been created, the student will register himself/herself in the course. Refer to the respective CFR Department for department-specific policies regarding applicability of Directed Individual Study (see Section II: Department-Specific Policies).

### **DISABILITIES, ACADEMIC ACCOMMODATIONS FOR STUDENTS WITH**

Students with disabilities must register with the MSU Student Support Services office in order to receive academic accommodations. Current documentation verifying the disability must be on file in this office. Guidelines are detailed at [www.msstate.edu/dept/audit/91130.html](http://www.msstate.edu/dept/audit/91130.html). Students are responsible for notifying instructors of their accommodation needs.

### **FINAL EXAMINATION POLICY**

The first day of the exam schedule is Reading Day to allow students time to prepare for exams. No mandatory assignment, meeting, or event for a class should be scheduled on Reading Day. All exams shall be held as specified on the exam schedule (found on the Mississippi State University web site: [www.msstate.edu](http://www.msstate.edu)). Classes meeting fewer than two hours a week and laboratories will have their exams at the last regular meeting of the class. Evening classes will have their exams at the regular meeting hour of the class during the examination period

Students having more than two final exams in one day should contact all instructors to determine if one of the exams can be rescheduled. If no instructor is willing to reschedule a final exam, the student can contact the Office of the Provost to resolve the problem.

### **FIREARMS ON CAMPUS**

The University prohibits the possession of any firearm, ammunition, any type of explosive, other weapon, firecracker, or the like on university-controlled property. Students found in possession of such may be suspended immediately pending a disciplinary hearing.

### **GIS CERTIFICATE PROGRAM**

With recent launches of remote sensing satellites, and the development of aerial remote sensing instruments that provide advanced spectral and radar technologies, operational remote sensing applications can impact the management of resources. Education in geospatial and remote sensing technologies is by nature multi-disciplinary; therefore, a certificate program crossing departments and colleges has been developed. Students choose which

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courses within their academic program can be used for the certificate program.

For a list of courses, visit [http://www.gri.msstate.edu/resources/certificate\\_program.html](http://www.gri.msstate.edu/resources/certificate_program.html).

### GRADE POINT AVERAGE

Grade Point Average (GPA) is calculated by dividing the total number of quality points earned by the total number of GPA hours. See the Graduation Requirements section for GPAs necessary for graduation. Quality points are based on a four-point system and are awarded as follows: A = 4, B = 3, C = 2, D = 1 and F = 0.

Each department has its own rules for calculating major core GPA. Refer to the respective department for department-specific policies regarding GPA (see Section II: Department-Specific Policies).

Example GPA Calculation				
		GPA Hours X Quality Points = Quality Points Earned		
		GPA Hours	Quality Points	Quality Points Earned
CO1003	C	3	2	6
CH1043	C	3	2	6
EN1113	B	3	3	9
FO1101	B	1	3	3
MA1313	A	3	4	12
Total		13		36
GPA = Total Quality Points Earned ÷ Total GPA Hours, e.g., GPA = 36 ÷ 13 = 2.77				

### GRADUATE SCHOOL

Students interested in graduate school should contact the department that houses the graduate degree program they are interested in for more information on graduate admission and requirements.

### GRADUATION AUDIT

Students should initiate a graduation audit with the CFR

Office of Student Services two semesters prior to the expected graduation semester. For example, if a student intends to graduate in the spring, he or she should complete his or her audit before the preceding Fall semester. An appointment with the Coordinator of the CFR Office of Student Services is required. The student's faculty advisor is sent a copy of the final audit. A graduation audit ensures that all degree requirements will be met.

The student applies for graduation through their BANNER account before the deadline posted in the Academic Calendar. By midterm of the graduating semester, the student must have all of their MSU accounts paid in full.

A graduation application fee plus late fees (if applicable) will be applied to the student's account.

### GRADUATION REQUIREMENTS

To earn the Bachelor of Science degree in the CFR, students must successfully meet the following criteria and steps:

1. Complete all course requirements for the selected major and concentration
2. Earn at least one half of the total hours required for the degree at a senior college
3. Complete from MSU ¼ of degree requirements in junior/senior courses (numbered 3000+)
4. Complete the last 32 hours that is applied to the degree at MSU
5. Earn at least a 2.00 grade point average in the following:
  - Cumulative hours attempted
  - MSU hours attempted
  - Major/concentration core hours as defined by each department
6. Complete a graduation audit two semesters prior to graduation (see Graduation Audit)
7. Apply for graduation (See Graduation Audit) before the deadline.

Academic departments may have additional graduation requirements. See Section II, Department Requirements.

### HOLD

Pre-registration and registration privileges are unavailable if a student is on hold. A student may be on hold for various

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reasons: unpaid traffic tickets, unpaid university bills, failure to return Summer Field Program equipment, etc. Once the hold is taken care of, registration privileges are reinstated.

### **HONOR CODE, College of Forest Resources**

Student organizations in the CFR have adopted an honor code for conduct. Each student is expected to uphold this code:

**“I WILL NOT CHEAT OR  
TOLERATE ANYONE WHO DOES.”**

The purpose of this code of ethics is to promote and further the honor, integrity, and character of the students of the CFR at MSU. The establishment and maintenance of high standards of conduct and behavior for the students are highly desirable and will lead to the development of mutual confidence and respect among fellow students and the faculty. Achievement of this relationship will enable faculty to give their maximum service to the students.

This code cannot begin to cover all of the diverse circumstances and variables which may occur when attempting to apply the code to everyday situations. Instead, it is proposed that the code be used as a guideline, a motivator by whose influence or “spirit” the student body willfully abides.

This code is the students’ code, and it is their responsibility to maintain it and to respect its purpose. The faculty will be charged with the enforcement of University policy for offenders and creation of an atmosphere conducive to achieving the goals of the code. For the code to be effective, each faculty member will make the code available to his or her students and explain how it applies to problems unique to that class in regard to tests, reports, and homework.

### **HONOR CODE, Mississippi State University**

Mississippi State University adopted in 2008 an Honor Code for students: Taken from the MSU web site at <http://students.msstate.edu/honorcode>. “Mississippi State University is dedicated to the discovery, development, communication and application of knowledge in a wide range of academic and professional fields and assumes as its historic trust the maintenance of freedom of inquiry

and an intellectual environment nurturing the human mind and spirit. The MSU Honor Code is critical to these ideals, to the goal of assuming a place of preeminence in higher education, and to the development of the whole student.” Students can see the following statement in every class and will be asked to accept this code:

**“As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”**

For more information, for definitions of academic misconduct, academic dishonesty sanctions, and procedures pertaining to this Honor Code, visit <http://students.msstate.edu/honorcode>.

### **JOB DATABASE**

The Jobs Database on the CFR web site, [www.cfr.msstate.edu](http://www.cfr.msstate.edu) contains professional, summer, and parttime employment, student worker positions, graduate assistantships, and internship opportunities. Students are encouraged to check this site often. The CFR also maintains an e-mail list of job postings. To subscribe, send a message to [sympa@lists.msstate.edu](mailto:sympa@lists.msstate.edu) and include in the subject line: [msucfrjobs@lists.msstate.edu](mailto:msucfrjobs@lists.msstate.edu), first name, last name. Leave the body of the e-mail blank.

### **LEARNING CENTER**

The Learning Center (TLC) helps students improve their academic performance. TLC offers both credit courses and non-credit services to all students. TLC provides assistance to students in a variety of areas, including grammar, study methods, spelling, writing research papers, reading, mathematics, science, statistics, chemistry, physics, and preparation for professional examinations. MSU statistics show that students with good academic standing are frequent visitors to TLC. The CFR recommends that students take advantage of the free services available. For more information, contact The Learning Center, 267 Allen Hall, 662.325.2957, [www.tlc.msstate.edu](http://www.tlc.msstate.edu). (see Math Domain and Writing Center for more assistance)

### **MATH DOMAIN**

The Math Domain features nearly 100 computers where

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students can complete class assignments, take quizzes, receive mathematics' tutoring, and homework assistance. Students may visit the Math Domain in Room 111 Allen Hall.

### MINORS

A minor in Forest Products is available to other majors across campus. Minors are not offered through the Forestry and Wildlife, Fisheries and Aquaculture departments. Minors to complement CFR degree programs are available to CFR students through other colleges at MSU. These minors include, but are not limited to, Agribusiness, Agriculture Economics, Biology, Communication, Economics, Environmental Science, General Business, Geology, and Leadership Studies. All WFA students following the four year Pre-Vet concentration should declare the Biology Minor. See Biology Minor in the General Information section of this handbook for requirements. Students pursuing a minor should indicate their intention in the CFR Student Services office and when applying for graduation in Banner. A student can contact his or her advisor, the department offering the minor, or the CFR Office of Student Services for more information.

### NON-DISCRIMINATION

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation or group affiliation, age, disability, or veteran status.

The Affirmative Action/Equal Opportunity Officer, 662.325.2493, has been designated as the responsible employee to coordinate efforts to carry out responsibilities and make investigation of complaints relating to discrimination in conformity with Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1974 and the Americans with Disabilities Act of 1990.

### OVERRIDES: CLOSED SECTIONS AND CONFLICTS

Permission to enroll in a closed section of a CFR course or override a conflict between two courses requires the signature of the instructor(s) and approval of the department offering the course. Forms are available in the CFR Student

Lounge. Students seeking permission to enroll in a closed course offered in another college must seek approval from that college. Overrides are only granted with permission of the instructor and if classroom space is available.

### POLICE DEPARTMENT

The MSU Police Department is a full-service agency that is available 24 hours a day throughout the year. The MSU Police Department works toward building partnerships with the University community to provide a safer environment with such programs and services as Cops-on-Bikes, Resident Hall Adopt-A-Cop, Operation Identification, R.A.D. Program, Community Police Officers, Bully Patrol, and Library Patrol. The Police Department may be contacted at 662.325.2121 for information or requests for services: <http://www.msstate.edu/dept/police>.

The MSU Police Department is also responsible for the management of the University's Parking Program through the registration of vehicles and enforcement of parking rules and regulations. Motorists may contact the Parking Division at 662.325.2665 with questions about parking permits, rules or parking arrangements. Anyone wishing to register his or her vehicle may do so on-line by logging into their student Banner account and linking to Vehicle Registration.

### PRE-REQUISITES/CO-REQUISITES

Some courses require that another course be taken prior to them (pre-requisite) or concurrent with them (co-requisite). A pre-requisite is meant to convey the minimum amount of background, in terms of academic knowledge or class standing, needed to successfully complete a given course. A co-requisite is meant to be taken at the same time as the course for which it is listed because of the complementary nature of the course material.

It is the student's responsibility to be aware of pre-requisites and co-requisites for all courses required in his or her program; pre-requisite/co-requisite courses are identified in the MSU Bulletin's Description of Courses section and in the back of this handbook.

A student may not enroll in a course that lists co-requisites unless he or she is concurrently enrolled in that co-



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requisite, or he or she has previously passed the co-requisite. A student may not drop a co-requisite during the drop/add period at the beginning of the semester without also dropping the course for which it is a co-requisite.

Any student attempting to enroll in a course for which he or she has: (1) not successfully completed the necessary pre-requisites; or (2) not enrolled in or previously completed the necessary co-requisite will be force-dropped from the class.

In the CFR, pre-requisites/co-requisites are enforced at the departmental level on an individual basis. A student seeking to waive a pre-requisite/co-requisite should discuss this possibility with his or her instructor and, pending instructor authorization, should complete a Request for Pre-Requisite/Co-Requisite Waiver form available on the CFR web site. The process requires the signatures of the student, instructor, departmental undergraduate coordinator, and department head. Most CFR classes are offered once a year. This should be considered when making schedule changes. Failure to enroll in a course, or a pre-requisite/co-requisite, the semester it is offered can delay graduation by a year.

### **PROFESSIONALISM**

Students will exhibit professional behavior and conduct at all times. Non-professional behavior will not be tolerated by the faculty, staff, or students. The CFR Honor Code, the professional society Code of Ethics (e.g., Society of American Foresters, The Wildlife Society, American Fisheries Society, Society of Wood Science and Technology), and common courtesy should be the guiding principles for the personal conduct of students in the CFR.

The success of a professional can be positively or negatively affected by the personal conduct and behavior of the individual. As a student continues to pursue a degree in the CFR, progress as a professional will not be judged solely on technical skills in completing educational assignments or knowledge during examinations. Conduct during these activities will greatly affect treatment as a person and a professional by peers, educators, and employers.

To be a successful professional and a respected member of the community, one must apply the acquired skills of the professional in a way that is acceptable and beneficial to society. Thus, a personal code of conduct is as important to a professional as one's administrative and technical abilities.

### **PROFESSIONAL EXPERIENCE**

Students are encouraged to gain professional experience through part time employment, summer employment, internships, etc... Professional Experience is defined as any job (paid or volunteer) with a company, agency, organization, or person(s) in which you performed duties pertaining to your major and profession and which provided you experience and learning outside the classroom.

If you are uncertain whether or not your work can be deemed professional experience, discuss your specific duties with your advisor to make an accurate determination. Students are asked to provide information about their experience each fall by submitting a resume to the Office of Student Services.

### **READING ROOM, GEORGE L. SWITZER**

The purpose of the George L. Switzer Reading Room (135 TH Hall) is to encourage scholarship and awareness of current affairs in the natural resources by providing a quiet environment with access to selected resources. The Reading Room is not intended to serve as a mini-library or to replace Mitchell Library.

Materials in the Reading Room include professional and scientific journals donated by faculty, students, and staff members; CFR theses and dissertations; donated books; historical/archival items, such as those related to Dr. Switzer's work in forest resources.

Students may check out material for a maximum of two hours by leaving their MSU ID or driver's license and completing a checkout sheet for each item being removed. To preserve free use of the Reading Room, student cooperation in returning materials in a timely manner is essential. Failure to do so will result in a hold on the student's record.

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### READMISSION REQUIREMENT

Students applying for readmission that meet MSU readmission requirements and have a 2.00 or better GPA will be admitted into the CFR degree programs. Students should see Curriculum/Catalog Life to determine the proper curriculum year to follow. Students with less than a 2.00 GPA will not be admitted to the Departments of Forestry or Wildlife, Fisheries and Aquaculture programs.

### RESIDENCY REQUIREMENT

The last 32 hours of coursework must be taken in residence at Mississippi State University. Students must also complete in residence at MSU no less than ¼ of his/her degree program in junior and senior subjects (courses numbered 3000 through 5000) (see Transfer of Credit).

### SCHEDULE CHANGES

A student may **add** a class before 8 a.m. on the sixth class day of a fall or spring semester (second class day of a five week summer session), as long as seats are available, by using Banner Web (refer to the Academic Calendar for specific dates). Late adds after that time must be approved. Students may complete a Drop/Add form, secure signatures of the instructor, the student's advisor, and the Associate Dean or the Student Services Coordinator in the CFR Office of Student Services. In addition, the student must secure signatures on a Student Registration Status available on the Banner web system located under the Student Records menu and accessible by the student. Students must have a clear registration status to have a late add approved. Students are **not eligible to register if holds prevented** them from registering during the semester's late registration period. The student will be charged a registration change fee.

A student may drop a course up to and including the 5th day of classes during the fall or spring semester (first class day of a five week summer session). The last date to drop a course without a grade can be found in the Academic Calendar on Banner. Students may elect to drop a course from the 6th to the 36th class day. If dropping a FO, FP, or WFA course, the professor/instructor, the student's advisor and the Student Services Coordinator in the CFR Office of

Student Services must approve this drop.

If dropping a course taught outside of the College of Forest Resources, the advisor and the Associate Dean or Student Services Coordinator in the CFR Office of Student Services must sign the form. A grade of "W" will be assigned on the student's transcript and a fee per course will assessed.

After the 36th day into the semester, students cannot drop a course, except in cases of special circumstances such as accident, illness, or failure of the instructor to provide significant assessment of his/her performance.

Requests for such course drops must be documented in writing and should be directed to the CFR Associate Dean. A student will not be permitted to drop a course after the 36th day of classes because of a heavy course load, a change of major, a repeated course, or the likelihood of poor grades.

Instructors are expected to provide students with test grades within the first 36 days of the semester. A student who has not received feedback by the drop date should contact the Student Services Coordinator in the CFR Office of Student Services.

Most CFR classes are offered once a year or every other year. This should be considered when making schedule changes. Failure to enroll in a course, or a pre-requisite/co-requisite, the semester it is offered can delay graduation by up to a year or two.

### SCHEDULE PREPARATION/ PRE-REGISTRATION

During each semester, time is scheduled for advising and pre-registration for the following term. Pre-registration dates are published in the Academic Calendar. Students should be aware of these dates at all times. Every student who plans to return to MSU the next semester should pre-register and should attend a Student Registration Meeting held prior to the advising period.

## SECTION I: GENERAL INFORMATION AND COLLEGE-WIDE POLICIES

Steps in pre-registration are:

1. During the week before pre-registration, students schedule an appointment with their advisor. Advisor names are listed in mystate under student information. Students who fail to make an appointment with their advisor for pre-registration during the week set aside in the MSU Academic Calendar may be prevented from pre-registering at their assigned time.
2. Before meeting with an advisor, students must prepare a trial schedule using their CAPP curriculum report. Trial schedule templates are available in the CFR Student Lounge and website. Pre-requisite/co-requisite courses should be checked before scheduling courses.
3. The student meets with the advisor at the appointed time. The advisor approves the student's schedule and both the advisor and student sign the enrollment form indicating agreement. Advisor and student also sign the Advisor Session form. The Advisor then releases the student for registration. Advisors return a copy of the enrollment form and the advising session forms to the Office of Student Services. Students add the approved schedule by logging into their Banner account and following the menu to Register For Classes.

In preparing a schedule, the following materials should be used:

1. The CFR Undergraduate Handbook for the academic year of the curriculum being followed for degree requirements and policies. Students should bring their CFR Undergraduate Handbook to advising appointments.
2. The MSU Bulletin for information not found in the CFR Undergraduate Handbook.
3. The listing of all courses being offered by the University for a particular semester is available through the student's Banner account on the MSU web site and following the Master Schedule link.

### SCHOLARSHIPS

Competitive scholarships are offered each year by both the University and the CFR. CFR scholarships are available to students who meet the criteria as stated in the guidelines of each scholarship. CFR scholarships are awarded annually and are not automatically renewable. Students must apply each year for consideration by March 1.

CFR students participating in Cooperative Education are eligible to receive scholarships during the summer immediately following a Spring Co-op semester. To be eligible for scholarship monies for the summer that immediately follows a spring Co-op semester, the student must be enrolled on a full-time basis (12 or more hours) during that summer. The Student Services Coordinator in the CFR Office of Student Services must approve this type of award before the beginning of the summer term in which the student is enrolled.

There are numerous external scholarships available. Announcements from external organizations are posted in the Student Lounge, 131 Thompson Hall. The Office of Student Services may identify students that meet scholarship requirements and will notify these students through e-mail.

### STUDENT CONDUCT

Students are expected to conduct themselves as adults and obey the laws, rules, and regulations of the University. Students must take personal responsibility for their conduct and must respect the rights of others. Students not adhering to these expectations are subject to expulsion from the University.

Aspects of misconduct which are unacceptable include, but are not limited to, cheating; destruction or damage to property; hazing, possession of firearms, alcohol, or controlled substances on University property; disorderly conduct while on campus or at an official University function; failure to pay fees; and any violation of civil or criminal ordinances or laws.

Also, inappropriate are acts of discrimination or harassment. Such acts intimidate, assault the dignity of, humiliate or

## SECTION I: GENERAL INFORMATION AND COLLEGE-WIDE POLICIES

embarrass members of the student body. Such acts cause deterioration of the learning environment and will not be tolerated.

### **SUBSTITUTION OF COURSES**

Required courses for professional curricula are established after careful consideration by the faculty. Often, portions of the curricula are dictated by professional societies or accrediting agencies. Therefore, substitution is generally not in the best interest of the student. However, a course may be substituted for a required course or professional elective provided the substitution can be justified to the satisfaction of the student's advisor, the department's undergraduate program coordinator, the department head, and the CFR Office of Student Services. Justification to substitute requires a legitimate reason and a logical substitution.

Legitimate reasons for requesting a course substitution include the CFR's failure to teach a required course the semester it is scheduled or conflicts due to CFR scheduling errors. Course substitutions are not granted to resolve scheduling conflicts which occur because the student has failed a class, dropped a scheduled course, neglected to schedule appropriate courses as advised, lacks a pre-requisite, or the student is not pursuing education on a full-time basis. Part-time students, including Co-op students, must accept responsibility for schedule conflicts. Students may acquire a Request for Substitution form on the CFR web site. The course substitution process requires the signatures of the student, advisor, department's undergraduate program coordinator, department head, and the CFR Office of Student Services.

### **TOBACCO ON CAMPUS**

Tobacco use in any form is prohibited in university facilities and vehicles.

### **TRANSFER CREDIT**

Students who transfer to MSU from accredited institutions must submit an official transcript to the MSU Admission's Office from each institution attended. Different curricula have different course requirements. Thus, courses accepted by the University may not apply to all college degree programs. Applicability of transfer work depends upon the equivalence of transfer credits to the requirements of a

particular curriculum. Applicability is determined by the University, the CFR, and the departments.

Application of community college work is limited to no more than one-half of the total requirements for graduation in a given curriculum at MSU. Once the student is within 32 hours of graduation, no further transfer credits will be accepted (see Residency Requirement). Technical courses are not automatically accepted in the CFR. Each department has a community college transfer guide for most community colleges in Mississippi identifying technical courses that are equivalent to CFR courses. Only transfer course work with a grade of C or higher will be applied to CFR programs (see Concurrent Enrollment).

### **WETLAND SCIENTIST CERTIFICATION**

The Society of Wetland Scientists promotes the management and sustainable use of wetlands. This program is intended to meet the needs of professional ecologists, hydrologists, educators, consultants, and others who practice wetland science. The Society supports education, public awareness, and stewardship of wetlands. Wetland Scientists Professional Certification recognizes the professional in wetland science internationally and provides an advantage when applying for employment. More information and the application for certification can be found at [www.wetlandcert.org](http://www.wetlandcert.org). Students interested in certification are encouraged to join the Society of Wetland Scientists.

### **WILDLIFE CERTIFICATION**

Certification in the Wildlife Society promotes education, training, and the ethical behavior of wildlife professionals. A higher set of standards for the Certified Wildlife Biologist is required and recognized providing an advantage when applying for employment. Application reviews are conducted by a peer Review Board comprised of wildlife professionals. More information and the application for certification can be found at <http://wildlife.org>. Students interested in certification are encouraged to join the Wildlife Society and to apply immediately upon graduation as there is a significant difference in application fees.

### **WITHDRAWAL FROM THE UNIVERSITY**

Any student who leaves the University before completion of the academic period in which he or she is enrolled must

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initiate withdrawal procedures. No withdrawals will be allowed during the last two weeks prior to the beginning of final examinations. Consult the Academic Calendar on the MSU Web site for official deadlines for withdrawing.

Most students who leave the University before the end of a term do so under stressful conditions. The required procedure for withdrawal from the University may seem insignificant at the time. However, it takes little effort and may prevent future difficulties for the student in obtaining transcripts or re-entering the University. Completing the required withdrawal process also prevents F grades from being automatically recorded by the University for all courses the student was enrolled in during the semester.

CFR students should contact the CFR Office of Student Services to discuss the ramifications of withdrawing. It is the student's responsibility to be aware of the ramifications of withdrawing. Examples include, but are not limited to, being required to pay back financial aid (grants, scholarships, or student loans) and other debts the student may have (e.g., resident housing charges; unsettled tuition fees; outstanding parking tickets; telephone charges; library accounts).

The withdrawal refund schedule can be found in the Academic Calendar on Banner Web. Students can access this schedule on their Banner Web User Login page.

### **WRITING CENTER**

The Department of English operates a Writing Center located on President's Circle across the street from Allen Hall. At no expense, students may use computers to access grammar and usage resources, as well as talk face-to-face with staff about writing projects. Students at all skill levels can visit the Writing Center at any stage in the writing process. The Writing Center is staffed by students earning their MA in English.

## SECTION II: DEPARTMENT OF SUSTAINABLE BIOPRODUCTS

### DEPARTMENT OF SUSTAINABLE BIOPRODUCTS (SB)

Dr. Rubin Shmulsky, Department Head

203 Franklin Center

The forest products industry is one of the largest economic contributors to Mississippi, as well as in the United States. Employment in the furniture, lumber, wood products, composites, and paper sectors of the economy far exceeds the employment of any other manufacturing sector in the state. Mississippi's forest products industry recognizes the need for well-trained employees to help increase the conversion efficiencies and alter manufacturing processes to allow compatibility with a changing raw material base. While the industry is large in terms of employment, value-added processing facilities number only a few thousand nationwide and a few hundred in Mississippi.

The mission of the Department of Sustainable Bioproducts is to enhance the intellectual, cultural, social, and professional development of its students by providing them with knowledge and skills needed to utilize and conserve diverse forest resources effectively. In this regard, the Department's primary teaching responsibility is to provide high quality educational opportunities necessary to adequately prepare students for professional and scientific careers in forest products and wood science.

The Department of Sustainable Bioproducts' physical plant consists of five laboratory/office buildings and other special purpose buildings and the Franklin Center for Furniture Manufacturing and Management, with a combined floor space in excess of 90,000 square feet. These buildings house the analytical and testing equipment, pilot plants, and support facilities required for a comprehensive research program involving wood and wood products.

#### **SUSTAINABLE BIOPRODUCTS MAJOR**

The forest products profession has traditionally focused on sustainable and renewable structural products. Students majoring in sustainable bioproducts for a future career in forest products will have a strong foundation in products, manufacturing, sales, trading and fundamental aspects

of timber-derived products, materials and structures. The curriculum also incorporates contemporary new products to include wood and non-wood products that come from agricultural residues, other natural fibers, natural-based adhesives, non-wood materials and other contemporary engineered products. Additionally, specialty chemicals such as paints and adhesives from natural resources and bio-based energy such as that related to wood pellets, bio-oil and wood alcohol are increasingly important with respect to sustainable industrial production. In addition to utilizing timber and agricultural residues, the discipline seeks to make housing and other structures last longer via preservative treatments and better construction techniques.

#### **FOREST PRODUCTS MINOR**

A Forest Products minor is available to non-majors to provide students with the knowledge of wood, wood products, their use, and importance to employers in many areas including construction, design, marketing and distributing, retail and wholesale management, sales, production, technical services, and scientific fields such as chemistry, engineering and industrial technology. A minor in Forest Products will also provide non-major students an excellent background for entering a graduate degree program in Forest Products. Academic advising is available in the Department of Sustainable Bioproducts located at 201 Locksley Way. A total of 18 hours is required to obtain a Forest Products minor.

## SECTION II: DEPARTMENT OF SUSTAINABLE BIOPRODUCTS

### 2016-2017 Sustainable Bioproducts Major

Total Hours = 124

#### Freshman Year

##### Fall Semester

EN 1103 English Composition I  
MA 1313 College Algebra (ACT subscore 19)  
SBP 1103 Intro to Sustainable Bioproducts  
CH 1043 Survey of Chemistry I  
Humanities Elective

##### Spring Semester

EN 1113 English Composition II (EN 1103)  
MA 1323 Trigonometry (C in MA 1313 or ACT subscore of 24)  
SBP 1203 Anatomy of Wood and other Natural Materials  
CH 1053 Survey of Chemistry II (CH 1043)  
CH 1051 Exp. Chemistry Laboratory  
Social Science Elective

#### Summer Program

SBP 2012 Introduction to Bioproduct Industries

#### Sophomore Year

##### Fall Semester

BIO 1134 Biology I  
SBP 2123 Materials and Processing  
CO 1003 Public Speaking  
ST 2113 or 3123 Statistics / Statistical Inference (C in MA 1313 or  
ACT math subscore of 24)  
Humanities Elective

##### Spring Semester

BIO 1144 Biology II  
SBP 3113 Biomaterial Physics and Mechanics  
SBP 3123 Biomass to Bioproducts  
Economics Elective  
Free Elective (2 hours)

#### Junior Year

##### Fall Semester

SBP 4313 Bioproducts and the Environment  
SBP Professional Elective  
Professional Elective  
Free Elective (3 hours)  
AIS 3203 Prof. Writing Ag, NR & Human Sci.

##### Spring Semester

SBP 4333 Bioproducts and Environmental Biotechnology  
SBP Professional Elective  
Professional Elective  
Professional Elective  
Fine Arts Elective

#### Senior Year

##### Fall Semester

SBP 4253 Quantitative Methods  
SBP Professional Elective  
SBP Professional Elective  
Professional Elective  
Free Elective (3 hours)

##### Spring Semester

SBP Professional Elective  
SBP Professional Elective  
SBP 4443 Capstone  
Professional Elective  
Professional Elective

## SECTION II: DEPARTMENT OF SUSTAINABLE BIOPRODUCTS

### 2016-2017 Sustainable Bioproducts Major Approved Elective List

#### Economics Elective

AEC 2713	Intro Food Resource Economics
EC 2113	Principles of Macroeconomics
FO 4113	Forest Resources Economics

#### Sustainable Bioproducts Professional Electives

SBP 3143	Biomass Characteristics and Production
SBP 4000	Individual Study
SBP 4023/6023	Lignocellulosic Biomass Chemistry
SBP 4113/6113	Adhesives and Biocomposites
SBP 4133/6133	Biorefinery Processes
SBP 4144/6144	Biocomposite Application and Manufacturing
SBP 4153/6153	Biological Conversion of Biomass
SBP 4213/6213	Deterioration and Preservation of Biomaterials
SBP 4243/6243	Sustainable Bioproducts
SBP 4263/6263	Strength Design of Furniture as Green Products
SBP 4313/6313	Bioproducts and Environment
SBP 4333/6333	Bioproducts and Environmental Biotechnology
SBP 4450	Undergraduate Research in SBP

#### Social Science Electives

AN 1103	Intro. to Anthropology
AN 1143	Intro. to Cultural Anthropology
AN 1543	Intro. to Archaeology
CO 1223	Intro. to Comm. Theory (CO 1003 or 2253)
CO 1403	Intro. to Mass Media
EN 2403/AN 2403	Intro. to the Study of Language
EC 1033	Economics of Social Issues
EPY 2513	Human Growth and Development
FO 4113	Forest Resource Economics (AEC 2713 or equiv.)
GR 1123	Intro. to World Geography
GR 2013	Cultural Geography
HON 1173	The West & the Wider World
HON 3143	Honors Seminar in SS (So., EN 1103, EN 1113)
HS 1813	Individual & Family Dev. through the Lifespan
PS 1113	American Government
PS 1313	Intro. to International Relations
PS 1513	Comparative Government
PSY 1013	General Psychology
SO 1003	Intro to Sociology
SO 1103	Contemporary Social Problems
SO 1203	Marriage and Family

#### Fine Arts Elective

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
MU 1113	History and Appr. of Music
MU 1123	American Music Appreciation
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Arts

#### Humanities Elective

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

#### Professional Electives

Choose any class that is 3000 level or above from the following subjects: ABE (Ag Bio Eng), AEC (Ag Econ), ARC 2713, BCH (Biochem), BCS (Build Const Sci), BIO (Biology), BIS (Bis Info Systems), BL (Bus Law), CE (Civil Eng), EC (Economics), EE (Electrical Engr), EG (Engr Graphics), EM (Engr Mech), EPP (Entomology Plant Path), FIN (Finance), FO (Forestry), GR (Geography), IE (Industrial Eng), TKI (Industrial Tech), LA (Landscape Arch), MGT (Management), MKT (Marketing), MA (Math), ME (Mechanical Eng), NREC (Nat Res Environ Conser), PH (Physics), PS (Political Sci), PSS (Plant Soil Sci), SBP (Sustainable Bioproducts), ST (Statistics), WFA (Wildlife Fish Aquaculture)

Approved Substitutions List for Sustainable Bioproducts Major	
Required Courses	Approved Substitutions
AIS 3203 Professional Writing Ag, NR & Human Sci.	MGT 3213 Org Comm (Jr., EN 1113) or BIO 3013 Prof Writing for Bio (Jr., or consent of instructor)
CO 1003 Public Speaking	CO 1013 Intro to Communication



# SECTION III: DEPARTMENT OF FORESTRY

DEPARTMENT OF FORESTRY (FO)  
Dr. Andrew Ezell, Department Head  
105 Thompson Hall

## DEPARTMENT OF FORESTRY ACADEMIC POLICIES AND PROCEDURES

### Correspondence Courses

Independent Study courses are not applied in the FO major.

### Distance Learning Courses

Distance learning courses (online) offered by an accredited college or university will be evaluated similarly to accepted transfer courses. Distance learning courses at MSU may be applied to the Forestry major in consultation with the student's advisor.

In addition, questionable distance learning courses offered through another accredited college or university for credit will be evaluated for equivalency at MSU after the student provides a course syllabus and proof that the course is part of a degree program at the institution granting a letter grade. The CFR Office of Student Services in consultation with the Department's Undergraduate Coordinator will review the course or courses for applicability toward a forestry degree at MSU.

Continuing Education credits cannot apply toward a degree. Articulation agreements with community colleges are still in place and have not changed.

### Directed Individual Study Courses

Directed Individual Study (DIS) courses can be applied to the FO major as a professional elective with prior approval. DIS courses may not be used as substitutes for FO major core courses. The approval process **requires** completion of the DIS form available on the CFR Web site and must have the signatures of the student, the instructor, the student's advisor, the Undergraduate Coordinator, the Department Head(s) of the instructor and the student, and the CFR Associate Dean. Once approved, the DIS Form must be on file in the Office of Student Services.

### Internships

Forestry majors have an opportunity to satisfy one 3-hour elective with an internship experience (FO 3003). Students

may apply for any number of internships for credit during their undergraduate years; however, only one elective course substitution will be allowed. Internships are a critical component of a student's professional development and provides the opportunity to gain work experience. The purpose of the internship is that it is critical that students have the opportunity to more actively participate in forestry or natural resource-related activities associated with his or her intended career above and beyond laboratory work. A student, junior standing or above, majoring in the Forestry undergraduate program with at least one elective available (i.e., professional, business/science, emphasis) may apply for an internship. For students in the Wildlife Management concentration this does not include using the professional elective set aside for wildlife biologist certification requirements. Note, students can always add three internship hours to their program during any semester to incorporate an internship opportunity. Summer work opportunities will require that the student enroll for the internship course in the fall. Full semester internships will only be eligible for three hours, given that other requirements are met. See Dr. Ian A. Munn, 107 Thompson Hall, 662-325-1379 before the beginning of the internship.

### Special Topics Courses

Special Topics courses can be substituted for professional electives in the FO major with prior approval. Special Topics courses may not be used as substitutes for FO major core courses. The approval process **requires** completion of the Substitution Form available on the CFR Web site and must have the signatures of the student, the student's advisor, the Undergraduate Coordinator, the Department Head of the student, and the CFR Associate Dean. The title, justification of the course substitution, course description, and course applicability must be provided. Once approved, the Substitution Form will be on file in the Office of Student Services.

## SECTION III: DEPARTMENT OF FORESTRY

### DEPARTMENT OF FORESTRY ACADEMIC POLICIES AND PROCEDURES

#### **Student Leadership Recognition Program**

The purpose of the leadership program is to introduce students to activities offered by the Department, the CFR, and beyond to stimulate them to voluntarily participate and recognize the importance of participating. This recognition of being a student leader and one who is active in extracurricular activities is a worthy addition to student resumes. Interested students should see Dr. Stephen C. Grado, Room 357 Thompson Hall, 662-325-2792.

#### **Transfer Credit**

Only transfer course work with a grade of C or higher will be applied to the FO major.

#### **FO Summer Field Program (for Forestry Majors only)**

Following the sophomore year, Forestry students must complete a Summer Field Program. The Summer Field Program is a 9-week session comprised of four courses that begin about the third week of May and end mid-July. The courses include: Forest Communities (FO 3012), Forest Description and Analysis (FO 3015), Introduction to Wood Supply Systems (FO 4231), and Introduction to Wildlife and Fisheries Practices (WFA 3031). Prerequisites for this program are Dendrology (FO 2113), Forest Measurements (FO 2213), Statistics (ST 2113), and Soils (PSS 3303).

The session is conducted on campus as well as on the John W. Starr Memorial Forest, the Tombigbee National Forest, and the Noxubee National Wildlife Refuge. In addition, the Introduction to Wood Supply Systems course frequents other nearby locations. Application information on Summer Field Program can be found in the Student Lounge, 131 Thompson Hall in early February and on the CFR web site.

#### **Forestry/Business Double Degree Program (for Forest Management concentration)**

A five-year curriculum leading to a Bachelor of Science in the Forest Management concentration of the FO major and a Bachelor of Business Administration in the College of Business is available. Several business and forestry courses can be double counted toward the dual degree. Contact the

CFR Office of Student Services for more information.

#### **Vanderford Scholars in Communications and Public Relations for Forestry majors**

The John M. Vanderford Memorial Fund was created to support MSU students who are full-time students in forestry, have a cumulative GPA  $\geq 2.50$ , show promise of an outstanding career and have an interest in developing additional skills in the communications or public relations aspects of forestry.

The Fund provides stipends to students that take communications and public relations courses. A \$100 stipend per course will be paid to students after a grade of C or better is earned in courses from the approved list.

The Fund also supports activities that promote communications and public relations, such as educating MSU students about Project Learning Tree, and traveling to professional meetings.

Students may use the stipends to become a John M. Vanderford Scholar. Students may pursue one of two concentrations to achieve a Certificate as a John M. Vanderford Scholar in Communications. Option 1 allows students flexibility to choose courses in communications from several programs at MSU. Option 2 is a formal minor from the Department of Communications. An additional \$500 stipend will be presented with each certificate.

Students must complete an application and submit to the Department of Forestry in 105 Thompson Hall before the last day to add a class each semester. See the CFR Student Services Coordinator for a list of approved courses and other details.

## SECTION III: DEPARTMENT OF FORESTRY

### DEPARTMENT OF FORESTRY ACADEMIC POLICIES AND PROCEDURES

#### FORESTRY MAJOR

The forestry major is a science-based program leading to a Bachelor of Science degree in Forestry and consists of five concentrations; Environmental Conservation, Forest Management, Forest Products, Urban Forestry, and Wildlife Management Concentration. All concentrations are accredited by the Society of American Foresters (SAF). The Forest Products concentration is also accredited by the Society of Wood Science and Technology (SWST). By combining a general education with specialized professional courses, the curriculum is designed to produce graduates who have skills in interpersonal communications, written and oral communications, and cultural understanding. Graduates of the major are qualified to become a Registered Forester in Mississippi after successfully completing an examination for this purpose with the Board of Registration for Foresters (BORF) in Mississippi. Graduates are also qualified to become Society of American Forester Certified Foresters if successfully completing an exam.

Graduates are fully qualified as entry-level professionals and prepared for career advancement into positions of responsibility, while serving the current and future needs of society. The forestry major also prepares students for graduate school in any natural resource-related field.

#### PROFESSIONAL EXPECTATIONS FOR STUDENTS IN THE FORESTRY PROGRAM

Forestry is a profession, and foresters are expected to conduct themselves as professionals beginning with their education. Behavior and habits developed now will carry over and affect your career progress. Forestry is more than trees; working with people is an important element of your successful career. You will interact with people from all walks of life, in all manner of ways. Respecting others, being aware of how your behavior affects them, and the impression you are conveying is crucial to your professional development. Your demeanor and actions reflect on you and Mississippi State University, the College of Forest

Resources and the Department of Forestry, our faculty, and the student body. Therefore, you should conduct yourself appropriately with regard to conduct, appearance, and respect for others.

The Department of Forestry has collectively agreed on a set of expectations and consequences for students relative to behavior and habits to apply in classes within Thompson Hall, on buses and vans, and during indoor and outdoors laboratories, which include trips to industrial plants, field and industrial operations, and field sites.

#### FORESTRY CONCENTRATIONS

Students must complete a specified core curriculum and one of five concentrations within the major:

1. Environmental Conservation
2. Forest Management
3. Forest Products
4. Urban Forestry
5. Wildlife Management

**Environmental Conservation** — Today's forestry professionals strive to balance commodity production with environmental conservation. This concentration is designed for students interested in focusing on complex environmental issues in the realm of natural resource management. While being educated as foresters, students concentrate on contemporary environmental concerns within three emphasis areas: social, land, and science.

**Forest Management** — Designed for students who intend to pursue professional careers in forest land and timber management and use in both the public and private sectors. Students may select from a wide range of electives to meet specific career objectives; for example, emphasis in areas such as business, communications, and geographical information systems in forestry and related sciences.

## SECTION III: DEPARTMENT OF FORESTRY

**Forest Products** — The use of wood as a material requires a fundamental understanding of wood properties, manufacturing processes, and the marketing of wood products. Students are prepared for positions in wood manufacturing, marketing, and research. Employers include lumber, pulp and paper mills, furniture manufacturers, and retail marketers of wood materials.

**Urban Forestry** — Addresses an emerging need for the management of trees in towns and cities, and the urban/wildland interface. Urban and community foresters manage trees along city streets, in municipal parks,

private woodlots, and utility right-of-ways. Employers include federal, state, and municipal governments, private consultants, and industry.

**Wildlife Management** — Designed for students interested in careers that emphasize wildlife management within the context of multiple-use management of forest land. The concentration fulfills course requirements for certification as wildlife biologists by The Wildlife Society. Many graduates of this concentration undertake graduate studies in wildlife biology and related areas to qualify for entry-level positions as wildlife biologists.

### FORESTRY MAJOR GPA REQUIREMENTS

#### FO Major GPA Courses

The following are FO major GPA courses. Grades of C or better are required in these courses. FO 1101, FO 2113, FO 2213, FO 3012, FO 3015, FO 3103, FO 4113, FO 4123, FO 4213, FO 4221, FO 4223, FO 4231, FO 4233, FO 4313, FO 4323, FO 4413, FO 4423, WFA 3031, and WFA 4153.

#### FO Major Requirements

- The **computer requirement** for FO majors is FO 3103. No exceptions are allowed.
- The **survey course** requirement is FO 1101. Students who change from the WFA major to the FO major and who have taken WFA 1102 may substitute this course for FO 1101.
- FO concentrations requiring a **forestry law course** must take FO 4353. Wildlife and Fisheries Policy and Law Enforcement (WFA 4353) cannot be substituted.

#### FO Major GPA Course Performance Requirements

Students may not apply courses with a grade of D to their FO major GPA requirements. Only course work with a grade of C or higher will be applied to the FO major GPA. The C policy applies also to graduation requirements. FO major courses are identified above.

A waiver to the C or better policy may be granted in cases in which there were extenuating circumstances.

An appeal of the C requirement for FO major GPA courses can only be initiated if a student earned a D in a core course. A grade of F can not be appealed. If a student wants to contest the C grade policy, the student must initiate the appeal with a signed letter to the Department Head explaining the reasons for the appeal. A cover form is available on the CFR web page under Current Students. The cover form must be attached to the petition letter. Include at the bottom of the letter a signature line for the instructor, the student's advisor, and the Department Head with a check box for each indicating agreement or disagreement. Once this letter is received, the Department Head will meet with the student, the student's advisor, and the instructor. Upon making a decision, the Department Head will notify the Office of Student Services, the student, the student's advisor, and the instructor of the decision. A copy of the letter and any other documentation will be kept on file in the Department Head's office and in the student's file in the Office of Student Services.

#### FO Major GPA Calculations

Grades of D and F will not be calculated in the FO Major GPA. A student must retake a FO major course (see list above) in which he or she receives a grade of D or F.

## SECTION III: DEPARTMENT OF FORESTRY

### NATURAL RESOURCE AND ENVIRONMENTAL CONSERVATION MAJOR

The Natural Resource and Environmental Conservation major objectives are to prepare its graduates for professional careers by: 1) providing the broader general education fundamentals of written and oral communication; mathematics; biological, social, and physical sciences; and humanities which are critical to the development and advancement of well-qualified professionals, 2) providing both the relevant domains of knowledge and their application to the solution of real-world problems and achievement of defined objectives, including in-depth coverage of ecology and biology; measurement and evaluation of natural resource environmental components, properties, and functioning; management of ecosystems; and legal, regulatory, policy, and economic aspects of ecosystem administration and management, 3) establishing awareness of historical and current issues and policies affecting ecosystem management and conservation, and 4) providing a variety of educational experiences including lectures, discussion, simulations, computer applications, individual and group projects in laboratories and field experiences, and a capstone course teaching students to conduct environmental impact assessments. The purpose of these experiences is to ensure that graduates of the program can knowledgeably develop, apply, facilitate, and/or execute natural resource and environmental management plans that adequately address matters of ownership/public goals and objectives, ecosystem health and sustainability, and the legal and regulatory environment.

#### The Major

The core curriculum of the Natural Resource and Environmental Conservation major is comprised of specifically selected and intentionally designed courses that provide students with a broad background in the science, technology, and the social aspects of natural resource and environmental science. In addition to general education and major core requirements, students will complete one of three concentrations: Natural Resource Law and Administration, Resource Conservation Science, or Natural Resource Technology.

#### Transfer students

Transfer students are encouraged to enter the Natural Resource and Environmental Conservation major at MSU

in the Spring semester of their sophomore year to complete their academic programs in the normal four-year period of study. Transfer students should be aware that course work taken elsewhere may not be accepted toward the degree. Only course work that is determined by the Department of Forestry to be equivalent to required course work will be accepted. In addition, no course work will be considered for acceptance unless a grade of C or better has been earned.

#### Degree Requirements

In addition to General Education and College requirements, students must attain a minimum grade of C on the Natural Resource and Environmental Conservation Major Core courses taught within the CFR.

#### International students

International undergraduate students must demonstrate English proficiency to be admitted into the NREC program. NREC requires a TOEFL score of at least 550.

### NATURAL RESOURCE AND ENVIRONMENTAL CONSERVATION CONCENTRATIONS

Students must complete a specified core curriculum and one of three concentrations within the major:

1. Natural Resource Law and Administration
2. Resource Conservation Science
3. Natural Resource Technology

**Natural Resource Law and Administration** — There are numerous laws, regulations, and policies affecting natural resource administration and management that have created a need for professionals with an understanding of the complex interactions between the science of managing natural resources and the laws, regulations, policies, and processes involved in their utilization and protection. This concentration will provide students with a background in the science of natural resource management as well as a foundation in the legal, regulatory, and administrative environment in which this management occurs. Students completing this program will be prepared for post-graduate studies in law, public policy administration, and a wide range of natural resource disciplines, as well as employment with private and public organizations and agencies.

## SECTION III: DEPARTMENT OF FORESTRY

**Resource Conservation Science** — There is a need for expertise in resource conservation that relies on a science-based education and an understanding of effective applications of this knowledge to solve problems in natural resource settings. This concentration promotes learning and skill sets in resource conservation and science that will meet this objective. Universities and employers are looking for natural resource professionals who have the necessary tools to be able to attend graduate school or become employed by private organizations, private industry, and state and federal agencies whose primary mission is environmental protection and resource conservation. This is particularly important since these organizations and agencies are under increasing demands to document and verify their activities in both protecting natural resources (i.e., aquatic and terrestrial) and assessing impacts on human, floral, and faunal populations relying on these environments.

**Natural Resource Technology** — Modern protocols for natural resource monitoring and management are highly dependent on utilization of spatial technologies such as remote sensing and geographic information systems (GIS). Spatial technologies and allied measurement and quantitative disciplines, combined with general knowledge needed for resource management, are essential in public- and private-sector natural resource professions. Students will also be amply prepared to continue with graduate studies in this area. This concentration is specifically designed to provide students with the fundamental background to meet the rapidly growing need for professionals who can collect, manage, and manipulate complex geospatial and ancillary data used in natural resource management.

## SECTION III: DEPARTMENT OF FORESTRY

### FORESTRY AND NATURAL RESOURCE AND ENVIRONMENTAL CONSERVATION CURRICULA

A student enrolled in the **Forestry (FO) major** must complete a specified core curriculum and one of five academic concentrations within the major:

- Environmental Conservation
- Forest Management
- Forest Products
- Urban Forestry
- Wildlife Management

A student enrolled in the **Natural Resource and Environmental Conservation (NREC) major** must complete a specified core curriculum and one of three academic concentrations within the major:

- Natural Resource Law and Administration
- Natural Resource Technology
- Resource Conservation Science

An example curriculum for each of these concentrations follows. The example curricula should be followed by those students entering MSU as freshmen or transferring during the Fall 2014, Spring 2015, or Summer 2015 semesters and by those students changing majors into a CFR major from another major on campus.

- Pre-requisites are shown in parentheses.
- Approved substitutions for each concentration are listed on the corresponding concentrations' electives list page. Approved substitutions do not require processing a substitution form.
- The list of approved electives is provided following the respective example curriculum pages.
- The semester courses that are taught every other year are shown in parentheses.

Acronyms used for Department of Forestry Concentrations	
FO/ENCO	Environmental Conservation
FO/FOMG	Forest Management
FO/FP	Forest Products
FO/URBN	Urban Forestry
FO/WFMG	Wildlife Management
NREC/NRLA	Natural Resource Law and Administration
NREC/NRT	Natural Resource Technology
NREC/RCS	Resource Conservation Science

## SECTION III: DEPARTMENT OF FORESTRY

**2016-2017 Forestry Major**  
**Environmental Conservation Concentration (FO/ENCO)**  
**Total Hours = 127**

### Freshman Year

Fall Semester		Spring Semester	
BIO 1134	Biological Sciences I	AEC 2713	Intro to Food and Res. Economics
CH 1043	Survey of Chemistry I	BIO 1144	Biological Sciences II
	Humanities Elective (3)	EN 1113	English Composition II (EN1103)
EN 1103	English Comp I (ACT English subscore 17)	MA 1313	College Algebra (ACT math subscore 19)
<b>FO 1101</b>	<b>Forest Resource Survey</b>	CO 1003	Fund. of Public Speaking

### Sophomore Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>	<b>FO 3103</b>	<b>Computer Appl. For. Resources</b>
FO 3113	Forest Recreation Mgt.	<b>FO 2213</b>	<b>Forest Measurements (ST 2113)</b>
PSS 3303	Soils (CH 1043)	PH 1113	General Physics I (MA 1323 or ACT math subscore 26)
ST 2113	Intro. to Statistics (C in MA 1313 or ACT math subscore 24)		Humanities Elective (3)
	Emphasis Elective (3)		

### Summer Field Program

**FO 3012 Intro to Forest Communities (PSS 3303, FO 2113)**  
**FO 3015 Forest Description and Analysis (FO 2213, ST 2113)**  
**FO 4231 Introduction to Wood Supply Systems (co-req FO 3015)**  
**WFA 3031 Introduction to Wildlife and Fisheries Practices (Jr.)**

### Junior Year

Fall Semester		Spring Semester	
WFA 3133	App Aqua.& Terr. Eco. (BIO 1134, 1144)	AIS 3203	Prof. Writing in Ag, NR & Human Sci (Jr.) (EN 1103, 1113)
EPP 3124	Forest Pest Management	<b>FO 4113</b>	<b>Forest Res. Econ. (AEC 2713)</b>
<b>FO 4123</b>	<b>Forest Ecology (FO 3012)</b>	<b>FO 4213</b>	<b>Forest Biometrics (ST 2113 or equivalent)</b>
<b>FO 4233</b>	<b>For. Op. and Harv. (FO 3015, FO 4231)</b>	<b>FO 4223/4221</b>	<b>Practice of Silviculture (FO 4123) + Lab</b>
	Fine Arts Elective (3)		Emphasis Elective (3)

### Senior Year

Fall Semester		Spring Semester	
<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (FO 3015)</b>	<b>FO 4413</b>	<b>Natural Res. Policy (Sr.)</b>
<b>FO 4323</b>	<b>For. Res. Mgt. (FO 4113, FO 4213, FO 4223, FO 4233)</b>	<b>FO 4423</b>	<b>Prof. Practice (FO 4323)</b>
<b>WFA 4153</b>	<b>Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)</b>	FO 4453	Remote Sensing Appl.
	Emphasis Elective (3)	FO 4463	Forest Hydro & Watershed Mgt. (PSS 3303, FO 4123)
	Emphasis Elective (3)		Emphasis Elective (2)

\*Major courses are bolded. Grades of C or better are required in these courses.



## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List Forestry - Environmental Conservation Concentration

Emphasis Electives: Choose 14 hours from among the three emphasis areas below (consult your advisor):

#### Land Emphasis

ABE 2873	Land Surveying (MA 1323)
FO 3203	Forest Fire
FO 4472/4471	GIS Nat. Res. Mgt. and Lab (Jr.)
FO 4483	Forest Soils (PSS 3303, FO 3012, FO 4123) (SP Odd)
GG 1113	Survey of Earth Sciences I
GG 1111	Earth Sciences I Lab
GG 3133	Intro. Environmental Geology (GG 1113)
GR 1114	Physical Geography
GR 3113	Conservation of Natural Resources
GR 4603	Climatology (GR 1114 or GR 1123)
PSS 4333	Soil Cons. and Use (PSS 3303)

#### Social Emphasis

FO 4343	Forest Admin. and Organization
FO 4353	Natural Resource Law (Jr.)
PHI 1123	Intro. to Ethics
PHI 3313	Environmental Economics
PHI 4143	Philosophy of Science
SO 4703	Population Prob. (SO 1003)
SO 4173	Environment and Society

#### Science Emphasis

BIO 4203	Tax. of Spermatophyte (BIO 2113, BIO 2213)
BIO 4213	Plant Ecology
FO 3213	Tree Physiolog (BIO 1134, BIO 1144)
NREC 3213	Environmental Measurements
NREC 4423	Environmental Assessments (NREC Sr.)
WFA 4223	Limnology (WFA 3133)
WFA 4383	Wetlands Ecology & Mgt (Jr., WFA 3133) (FL Even)

Courses for a GIS minor, may be used as emphasis electives

GR 2313	Maps and Remote Sensing
GR 4203	Prin of GIS

#### Fine Arts (3 hours)

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
MU 1113	History and Appr. of Music
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Artcrafts

#### Humanities (6 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

Approved Substitutions List for Environmental Conservation Concentration	
Required Courses	Approved Substitutions
AEC 2713 Intro to Food & Resource Economics	EC 2113 Macroeconomics (SO) or EC 2123 Microeconomics (SO, EC 2113)
AIS 3203 Prof Writing Ag, NR, Human Sci.	EN 3313 Writ. for the Workplace (EN 1113) or MGT 3213 Organ. Comm. (Jr., EN 1113)
FO 4452/4451 Remote Sensing and Lab	FO 4472/4471 GIS for Natural Resource Management (Jr.)
PH 1113 General Physics	CH 1053 Survey of Chem II (CH 1043), GR 1114 Physical Geography, or PH 2213 Physics I (MA 1713), CH 1223 (CH 1213)
ST 2113 Intro to Statistics	MA 2113 Intro to Statistics, MA 3123 or ST 3123 Statistics Inference (all require C in MA 1313 or ACT math subscore 24)
CH 1043 Survey of Chemistry I	Any higher level chemistry course.
FO 4463 Forest Hydro & Water Management	FO 4483 Forest Soils (PSS 3303, FO 3012, FO 4123)

## SECTION III: DEPARTMENT OF FORESTRY

**2016-2017 Forestry Major**  
**Forest Management Concentration (FO/FOMG)**  
**Total Hours = 128**

### Freshman Year

#### Fall Semester

BIO 1134	Biological Sciences I
CH 1043	Survey of Chemistry I
EN 1103	English Comp I (ACT English subscore 17)
<b>FO 1101</b>	<b>Forest Resource Survey</b>
MA 1313	College Algebra (ACT math subscore 19)
SBP 1103	Intro to Sustainable Bioproducts

#### Spring Semester

AEC 2713	Intro to Food and Res. Economics
BIO 1144	Biological Sciences II
CO 1003	Fund. of Public Speaking
EN 1113	English Composition II (EN 1103)

### Sophomore Year

#### Fall Semester

<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>
FO 3113	Forest Recreation Mgt.
PH 1113	General Physics I (MA 1323 or ACT math subscore 26)
PSS 3303	Soils (CH 1043)
ST 2113	Intro. to Statistics (C in MA 1313 or ACT math subscore 24)

#### Spring Semester

<b>FO 3103</b>	<b>Computer Appl. For. Resources</b>
<b>FO 2213</b>	<b>Forest Measurements (ST 2113)</b>
	Business/Science Elective (3)
	Fine Arts Elective (3)
	Humanities Elective (3)

### Summer Field Program

- FO 3012 intro to Forest Communities (PSS 3303, FO 2113)**
- FO 3015 Forest Description and Analysis (FO 2213, ST 2113)**
- FO 4231 Introduction to Wood Supply Systems (co-req FO 3015)**
- WFA 3031 Introduction to Wildlife and Fisheries Practices (Jr.)**

### Junior Year

#### Fall Semester

AIS 3203	Prof. Writing in AG, NR & Human Sci (Jr., EN 1103, EN 1113)
EPP 3124	Forest Pest Management
<b>FO 4123</b>	<b>Forest Ecology (FO 3012)</b>
<b>FO 4233</b>	<b>For. Op. and Harv. (FO 3015, FO 4231)</b>
	Humanities Elective (3)

#### Spring Semester

<b>FO 4113</b>	<b>Forest Res. Econ. (AEC 2713)</b>
<b>FO 4213</b>	<b>Forest Biometrics (ST 2113 or equivalent)</b>
<b>FO 4223</b>	<b>Practice of Silviculture (FO 4123)</b>
<b>FO 4221</b>	<b>Practice of Silviculture Lab (FO 4123)</b>
	Professional Elective (3)
	Business/Science Elective (3)

### Senior Year

#### Fall Semester

<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (FO 3015)</b>
<b>FO 4323</b>	<b>For. Res. Mgt. (FO 4113, FO 4213, FO 4223, FO 4233)</b>
<b>WFA 4153</b>	<b>Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)</b>
	Professional Elective (3)

#### Spring Semester

<b>FO 4413</b>	<b>Natural Res. Policy (Sr.)</b>
<b>FO 4423</b>	<b>Prof. Practice (FO 4323)</b>
	Business/Science Elective (3)
	Free Elective (3)
	Professional Elective (3)

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List Forestry - Forest Management Concentration

#### Professional Electives (Can be applied as Business/Science electives)

ABE 2873	Land Surveying (MA 1323)
BIO 3103	Genetics (MA 1313, BIO 1134, or BIO 2113)
BIO 3104	Ecology (BIO 1134)
BIO 4203	Taxon. of Spermatophyte (BIO 2113 & 2213)
BIO 4213	Plant Ecology
EPP 4154	General Entomology
EPP 4263	Prin. Insect Pest Mgt.
FO	ANY UPPER LEVEL FO COURSE 3000 or higher*
FO 4453	Remote Sensing Application
GR 2313	Maps Remote
NREC	ANY UPPER LEVEL NREC COURSE 3000 or higher*
NREC 3213	Environmental Measurements
SBP	ANY UPPER LEVEL SBP COURSE 3000 or higher*
ST 4213	Nonparametric Methods (ST 2113)
WFA	ANY UPPER LEVEL WFA COURSE 3000 or higher*

\*CFR courses not otherwise specified on our curricula may be applied through the substitution process.

#### Humanities (6 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

#### Business/Science (Upper level courses can be applied as PE)

ACC 2013†	Prin. Financial Accounting
ACC 2023†	Prin. Managerial Acc. (ACC 2013)
BIS 3233†	Mgt. Information Systems
BL 2413†	Legal Environ. Business
BQA 3123†	Bus. Stat. Meth. II (BQA 2113)
CH 1053	Survey of Chemistry II (CH 1043)
EC 2113†	Prin. Macroeconomics (So.)
EC 2123†	Prin. Microeconomics (EC 2113)
FIN 3123†	Fin. Mgt. (ACC 2013, EC 2123, BQA 2113)
GG 1113	Survey of Earth Science I
GG 4503	Geomorphology (consent of instructor)
GR 1114	Elements of Physical Geography
GR 3113	Conservation of Natural Resources
GR 4603	Climatology (GR 1114 or GR 1123)
INS 3103	Principles of Insurance (Jr.)
MGT 3114†	Prin. of Mgt. Prod. (EC 2113, BQA 2113, Jr.)
MGT 3323	Entrepreneurship (EC 2123)
MGT 3513	Intro. Human Resource Mgt.
PH 1013	Physical Sci. Survey (MA 0103 or ACT math subscore 19)
PH 1063	Descriptive Astronomy
PHI 3013	Business Ethics
PSS 4313	Soil Fertility and Fertilizers (PSS 3303, Jr.)
PSS 4323	Soil Classification (PSS 3303)
PSS 4333	Soil Conservation and Land Use (PSS 3303)
REF 3333	Principles of Real Estate (Jr.)
REF 3433	Real Property Evaluation (REF 3333)

†Courses can apply to the General Business Minor

Courses accepted for the GIS Certificate may be applied as Professional or Business/Science Electives.

#### Fine Arts (3 hours)

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
MU 1113	History and Appr. of Music
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Artcrafts

#### Approved Substitutions List for Forest Management Concentration

Required Courses	Approved Substitutions
AEC 2713 Intr. Food & Resource Eco	EC 2113 Macroeconomics (So.) or EC 2123 Microeconomics (So., EC 2113)
AIS 3203 Prof Writing in Ag, NR & Human Sci	EN 3313 Writ. for the Workplace (EN 1113) or MGT 3213 Organ. Comm. (Jr., EN 1113)
PH 1113 General Physics	CH 1053 Survey of Chem II, GR 1114 Physical Geography, or PH 2213 Physics I (MA 1713), CH 1223 (CH 1213)
ST 2113 Intro to Statistics	MA 2113 Intro to Statistics, MA 3123 or ST 3123 Statistics Inf. (All require C in MA 1313 or ACT math subscore 24)
CH 1043 Survey of Chemistry I	Any higher level chemistry course.

## SECTION III: DEPARTMENT OF FORESTRY

**2016-2017 Forestry Major**  
**Forest Products Concentration (FO/FP)**  
**Total Hours = 128**

### Freshman Year

Fall Semester		Spring Semester	
BIO 1134	Biological Sciences I	AEC 2713	Intro to Food and Res. Economics
CH 1043	Survey of Chemistry I	BIO 1144	Biological Sciences II
EN 1103	English Comp. I (ACT English subscore 17)	CH 1053	Survey of Chemistry II (CH 1043)
<b>FO 1101</b>	<b>Forest Resources Survey</b>	CO 1003	Public Speaking
MA 1613	Calc. for Bus. and Life Sc. (C in MA 1313 or ACT math subscore 24)	EN 1113	English Comp. II (EN 1103)
SBP 1103	Intro to Sustainable Bioproducts		

### Sophomore Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>	<b>FO 3103</b>	<b>Computer Appl. For. Resources</b>
PH 1113	General Physics (MA 1323 or ACT math subscore 26)	<b>FO 2213</b>	<b>Forest Measurements (ST 2113)</b>
PSS 3303	Soils (CH 1043)		Fine Arts Elective (3)
ST 2113	Intro to Statistics (C in MA 1313 or ACT math subscore 24)		FP Processing Elective (3)
FP 4013	Wood Anatomy (SBP 1103) (FL Even)		FP Elective (3)

### Summer Field Program

**FO 3012 Intro to Forest Communities (PSS 3303, FO 2113)**  
**FO 3015 Forest Description and Analysis (FO 2213, ST 2113)**  
**FO 4231 Introduction to Wood Supply Systems (co-req. FO 3015)**  
**WFA 3031 Introduction to Wildlife and Fisheries Practices (Jr.)**

### Junior Year

Fall Semester		Spring Semester	
EPP 3124	Forest Pest Management	AIS 3203	Prof. Writing in Ag, NR & Human Sci. (Jr., EN 1103, EN 1113)
<b>FO 4123</b>	<b>Forest Ecology (FO 3012)</b>	<b>FO 4113</b>	<b>Forest Res. Econ. (AEC 2713)</b>
<b>FO 4233</b>	<b>For. Op. and Harv. (FO 3015, FO 4231)</b>	<b>FO 4213</b>	<b>Forest Biometrics (ST 2113 or equivalent)</b>
FP Elective (3)		<b>FO 4223/4221</b>	<b>Practice of Silviculture and Lab (FO 4123)</b>
		SBP 3113	Biomaterial Physics and Mechanics (MA 1323)

### Senior Year

Fall Semester		Spring Semester	
<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (FO 3015)</b>	<b>FO 4413</b>	<b>Natural Res. Policy (Sr.)</b>
<b>FO 4323</b>	<b>For. Res. Mgt. (FO 4113, FO 4213, FO 4223, FO 4233)</b>	<b>FO 4423</b>	<b>Prof. Practice (FO 4323)</b>
			FP Elective (3)
<b>WFA 4153</b>	<b>Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)</b>		Humanities Elective (3)
FP Elective (3)			
Humanities Elective (3)			

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List Forestry - Forest Products Concentration

#### Forest Products Processing Electives (3 hours)

FP 4123	Lumber Manufacturing (FL Even)
FP 4223	Furniture Production I (FL Odd) (SBP 1103)
SBP 2012	Intro to Bioproduct Industry
SBP 2123	Mat Proc Sustain Bioproduct (SBP 2012)
SBP 4143	Biocomposite Application and Manufacturing (SPB 4113)
SBP 4253	Quantitative Methods in Sustainable Bioproducts (MA 1313, MA 1323, SBP 2123)

#### Forest Products Electives (12 hours)

FP 4223	Furniture Production I
FP 4233	Furniture Production II (SBP 1103)
FP 4313	Environmental Principles (SBP 2012)
FP 4423	Mech. Properties of Wood (SBP 1103, MA 1613, PH 1113)
SBP 2012	Introduction to Bioproduct Industry
SBP 2123	Mat Proc Sustain Bioproduct.
SBP 4023	Lignocellulosic Biomass Chemistry (CH1043 and CH 1053 or equivalent)
SBP 4113	Adhesives and Biocomposites (SBP 2123, SBP 3113, SBP 3123, CH 1053) (FL Odd)
SBP 4123	Deterioration and Reserv Biomat (SBP 1103) (FL Even) (Consent of Instructor)
SBP 4144	Biocomposite Application and Manufacturing (SBP 2123, SBP 3113, SBP 3123, SBP 4113)
SBP 4213	Deterioration and Preservation of Biomaterials
SBP 4253	Quantitative Methods in Sustainable Bioproducts (MA 1313, MA 1323, SBP 2123)

#### Fine Arts (3 hours)

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Arts

#### Humanities (6 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature (EN 1103, EN1113)
EN 2273/2283	World Literature (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

#### Approved Substitutions List for Forest Products Concentration

Required Courses	Approved Substitutions
AEC 2713 Intro to Food & Resource Economics	EC 2113 Macroeconomics (So.) or EC 2123 Microeconomics (So., EC 2113)
AIS 3203 Prof. Writing in Ag, NR & Human Sci.	EN 3313 Writ. for the Workplace (EN 1113) or MGT 3213 Organ. Comm. (Jr., EN 1113)
MA 1613 Business Calculus	MA 1713 Calculus (Act math subscore 26 or MA 1323 or MA 1453)
ST 2113 Intro to Statistics	MA 2113 Intro to Statistics, MA 3123 or ST 3123 Statistics Inference (All require C in MA 1313 or ACT math subscore 24)
CH 1043 Survey of Chemistry I	Any higher level chemistry course
CH 1053 Survey of Chemistry II	Any higher level chemistry course

## SECTION III: DEPARTMENT OF FORESTRY

**2016-2017 Forestry Major**  
**Urban Forestry Concentration (FO/URBN)**  
**Total Hours = 128**

### Freshman Year

Fall Semester		Spring Semester	
BIO 1134	Biological Sciences I	AEC 2713	Intro to Food and Res. Economics
CH 1043	Survey of Chemistry I	BIO 1144	Biological Sciences II
Humanities Elective (3)		EN 1113	English Comp. II (EN 1103)
EN 1103	English Comp. I (ACT English subscore 17)	PS 1113	American Government
<b>FO 1101</b>	<b>Forest Resources Survey</b>	CO 1003	Fund. of Public Speaking
MA 1313	College Algebra (ACT math subscore 19)		

### Sophomore Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>	<b>FO 3103</b>	<b>Computer Appl. For. Resources and Lab</b>
PSS 2423	Plant Materials I	<b>FO 2213</b>	<b>Forest Measurements (ST 2113)</b>
ST 2113	Intro to Statistics (C in MA 1313, or ACT math subscore 24)	PSS 3303	Soils (CH 1043)
Fine Arts Elective (3)		Humanities (3)	

### Summer Field Program

**FO 3012 Intro to Forest Communities (PSS 3303, FO 2113)**  
**FO 3015 Forest Description and Analysis (FO 2213, ST 2113)**  
**FO 4231 Introduction to Wood Supply Systems (co-req FO 3015)**  
**WFA 3031 Introduction to Wildlife and Fisheries Practices (Jr.)**

### Junior Year

Fall Semester		Spring Semester	
AIS 3203	Prof Writing Ag, NR & Human Sci. (Jr., EN 1103, EN 1113)	<b>FO 4113</b>	<b>Forest Res. Econ. (AEC 2713)</b>
EPP 3124	Forest Pest Management	<b>FO 4213</b>	<b>Forest Biometrics (ST 2113 or equivalent)</b>
<b>FO 4123</b>	<b>Forest Ecology (FO 3012)</b>	<b>FO 4223</b>	<b>Practice of Silviculture (FO 4123)</b>
<b>FO 4233</b>	<b>For. Op. and Harv. (FO 3015, FO 4231)</b>	<b>FO 4221</b>	<b>Practice of Silviculture Lab (FO 4123)</b>
LA 3623	Urban Planning	REF 3333	Principles of Real Estate (Jr.)
		PSS 3473	Plant Material II (PSS 2423)

### Senior Year

Fall Semester		Spring Semester	
FO 3113	Forest Recreation Mgt.	FO 4353	Natural Resource Law (Jr.)
<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (FO 3015)</b>	<b>FO 4413</b>	<b>Natural Resource Policy (Sr.)</b>
<b>FO 4323</b>	<b>For. Res. Mgt. (FO 4113, FO 4213, FO 4223, FO 4233)</b>	<b>FO 4423</b>	<b>Prof. Practice (FO 4323)</b>
<b>WFA 4153</b>	<b>Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)</b>	FO 4472/4471	GIS Nat. Res. Mgt. + Lab (Jr.)
PSS 4353	Arboriculture and Landscape Maintenance	REF 3433	Real Property Eval. (REF 3333)

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List Forestry - Urban Forestry Concentration

#### Fine Arts (3 hours)

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Artcrafts

#### Humanities (6 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

Approved Substitutions List for Urban Forestry Concentration	
Required Courses	Approved Substitutions
AEC 2713 Intro to Food & Resource Economics	EC 2113 Macroeconomics (So.) or EC 2123 Microeconomics (So., EC 2113)
AIS 3203 Prof. Writing for Ag, NR & Human Sci.	EN 3313 Writ. for the Workplace (EN 1113) or MGT 3213 Organ. Comm. (Jr., EN 1113)
ST 2113 Intro to Statistics	MA 2113 Intro to Statistics, MA 3123 or ST 3123 Statistics Inference (All require C in MA 1313 or ACT math subscore 24)
FO 4472/4471 GIS for Nat. Res. Management	FO 4452/4451 Remote Sensing (FO 4313 or GR 2313)
CH 1043 Survey of Chemistry I	Any higher level chemistry course.

## SECTION III: DEPARTMENT OF FORESTRY

**2016-2017 Forestry Major**  
**Wildlife Management Concentration (FO/WFMG)**  
**Total Hours = 126**

### Freshman Year

Fall Semester		Spring Semester	
BIO 1134	Biology I	AEC 2713	Intro to Food and Res. Economics
CH 1043	Survey of Chemistry I	BIO 1144	Biology II
EN 1103	English Comp. I (ACT English subscore 17)	EN 1113	English Comp. II (EN 1103)
<b>FO 1101</b>	<b>Forest Resources Survey</b>	Physical Science Elective (3)	
MA 1313	College Algebra (ACT math subscore 19)	CO 1003	Fund. of Public Speaking

### Sophomore Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>	BIO 4203	Tax. of Spermatophytes (BIO 2113, BIO 2213)
PSS 3303	Soils (CH 1043)	<b>FO 3103</b>	<b>Computer Appl. For. Resources and Lab</b>
ST 2113	Intro. to Statistics (C in MA 1313 or ACT math subscore 24)	<b>FO 2213</b>	<b>Forest Measurements (ST 2113)</b>
		Fine Arts Elective (3)	
WFA 3133	Appl. Aqua. & Terr. Ecol. (BIO 1134, BIO 1144)	Humanities Elective (3)	

### Summer Field Program

**FO 3012 Intro to Forest Communities (PSS 3303, FO 2113)**  
**FO 3015 Forest Description and Analysis (FO 2213, ST 2113)**  
**FO 4231 Introduction to Wood Supply Systems (co-req FO 3015)**  
**WFA 3031 Introduction to Wildlife and Fisheries Practices (Jr.)**

### Junior Year

Fall Semester		Spring Semester	
AIS 3203	Prof. Writing for Ag, NR & Human Sci. (Jr., EN 1103, EN 1113)	BIO 3524	Biology of Vertebrates
EPP 3124	Forest Pest Management	<b>FO 4113</b>	<b>Forest Resource Economics (AEC 2713)</b>
<b>FO 4123</b>	<b>Forest Ecology (FO 3012)</b>	<b>FO 4213</b>	<b>Forest Biometrics (ST 2113 or equivalent)</b>
<b>FO 4233</b>	<b>For. Op. and Harv. (FO 3015, FO 4231)</b>	<b>FO 4223/4221</b>	<b>Practice of Silviculture + Lab (FO 4123)</b>
Professional Elective (3)*			

### Senior Year

Fall Semester		Spring Semester	
WFA 4433	Mammalogy (BIO 1134 BIO 1144, and WFA 3133)	WFA 4443	Ornithology (BIO 1134, BIO 1144, and WFA 3133)
<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (FO 3015)</b>	FO 4353	Natural Resource Law (Jr.)
<b>FO 4323</b>	<b>For. Res. Mgt. (FO 4113, FO 4213, FO 4223, FO 4233)</b>	<b>FO 4413</b>	<b>Natural Res. Policy (Sr.)</b>
<b>WFA 4153</b>	<b>Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)</b>	<b>FO 4423</b>	<b>Prof. Practice (FO 4323)</b>
		WFA 4243	Wildlife Techniques (Jr.)
Humanities Elective (3)			

\*Major courses are bolded. Grades of C or better are required in these courses.

\*See note on approved elective list regarding professional elective.



# SECTION III: DEPARTMENT OF FORESTRY

## 2016-2017 Approved Elective List Forestry - Wildlife Management Concentration

### Professional Elective (3 hours)

Students seeking certification through The Wildlife Society (TWS) must take one of the courses in bold below to meet certification requirements and graduation requirements

<b>BIO 3103</b>	<b>Genetics (MA 1313, BIO 1134 or BIO 2113)</b>
<b>BIO 3304</b>	<b>General Microbiology (CH 1053)</b>
<b>BIO 3504</b>	<b>Comparative Anatomy (BIO 1134, BIO 1144)</b>
<b>BIO 4413</b>	<b>Immunology (BIO 3304, CH 4513)</b>
<b>BIO 4514</b>	<b>Animal Physiology (10 hours BIO/Org Chem)</b>
<b>EPP 4154</b>	<b>General Entomology</b>
<b>PO 4844</b>	<b>Avian Anatomy and Physiology</b>
<b>WFA 4173</b>	<b>Fish Physiology (BIO 1134 and BIO 1144)</b>
<b>WFA 4263</b>	<b>Wildlife Diseases (BIO 1134 and BIO 1144)</b>
<b>WFA 4323</b>	<b>Wildlife Nut. &amp; Phys. (BIO 1134 and BIO 1144)</b>
<b>WFA 4453</b>	<b>Ichthyology (BIO 1134, BIO 1144, &amp; WFA 3133)</b>

### Fine Arts (3 hours)

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/	African American Music
AAS 1103	
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Artcrafts

### Physical Science Elective (3 hours)

CH 1053	Survey of Chemistry II (CH 1043)
GR 1114	Physical Geography
PH 1113	General Physics I (MA 1323 or ACT math sub-score 26)

### Professional Elective (3 hours)

Students not seeking WF certification may choose from the list below to satisfy the Professional Elective. Students must file a Certification Waiver Form.

ABE 2873	Land Surveying (MA 1323)
BIO 4213	Plant Ecology
FO	ANY UPPER LEVEL FO COURSE 3000 or higher
FO 4453	Remote Sensing App
GR 2313	Maps Remote
MGT 3513	Intro. Human Res. Mgt
ST 4213	Nonparametric Methods (ST 2113)
WFA 3000	Internship (Jr. and 2.75+ GPA)
WFA 4133	Fisheries Science (ST 3123 or equiv.)
WFA 4233	Limnology (WFA 3133)
WFA 4313	Fisheries Mgt. (WFA 3133)
WFA 4353	Fish & Wildlife Policy and Law Enf. (Sr.)
WFA 4463	Human Dimen. of Fish and Wildlife Mgt. (Jr.)

### Humanities (6 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

### Approved Substitutions List for Wildlife Management Concentration

Required Courses	Approved Substitutions
AEC 2713 Int to Food & Res Eco	EC 2113 Macroeconomics (So.) or EC 2123 Microeconomics (So., EC 2113)
AIS 3203 Prof. Writing Ag, NR & Human Sci.	EN 3313 Writ. for the Workplace (EN 1113) or MGT 3213 Organ. Comm. (Jr., EN 1113)
BIO 3524 Biology of Vertebrates	ADS 4114 An. Nut, BIO 3103 Genetics, BIO 3304 Gen Microbio, BIO 3504 Comp Anat, BIO 4404 Env Microbio, BIO 4413 Immun, BIO 4514 An Phys, EPP 4154 Gen Entom, EPP 4244 Aq Entom, PO 4843 Avian Phys, WFA 4173 Fish Phys, WFA 4263 WF Diseases, WFA 4323 WF Nut & Phy or WFA 4423 Herpetology
BIO 4203 Tax of Spermatophytes	BIO 4214 General Plant Physiology (BIO 2113, CH1213) or WFA 4223 Wildlife Plant ID (BIO 1134, BIO 1144, WPA 3133) or FO 3213 Tree Physiology (BIO 1134, BIO 1144)
ST 2113 Intro to Statistics	MA 2113 Intro to Statistics, MA 3123, or ST 3123 Statistics Inference (All require C in MA 1313 or ACT math sub-score 24)
CH 1043 Survey of Chemistry I	Any higher level chemistry course.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Natural Resource and Environmental Conservation Major Natural Resource Law and Administration (NREC/NRLA)

Total Hours = 124

#### Freshman Year

##### Fall Semester

BIO 1134	Biological Sciences I
CH 1043	Survey of Chemistry I
EN 1103	English Comp. I (ACT English subscore 17)
<b>FO 1101</b>	<b>Forest Resources Survey</b>
MA 1313	College Algebra (ACT math subscore 19)

##### Spring Semester

AEC 2713	Intro Food Res Econ
BIO 1144	Biological Sciences II
GR 1114	Physical Geography
EN 1113	English Composition II (EN 1103)
PHI 1113	Introduction to Logic

#### Sophomore Year

##### Fall Semester

<b>FO 2113</b>	<b>Dendrology (BIO 1144 or 2113)</b>
<b>FO 3113</b>	<b>Forest Recreation Management</b>
LA 1803	Landscape Arch Appreciation
PSS 3303	Soils (CH 1043)
PSS 3301	Soils Lab
ST 2113	Intro to Statistics (C in MA 1313 or ACT math subscore of 24)

##### Spring Semester

CO 1003	Fund of Public Speaking
<b>FO 3103</b>	<b>Computer Appl For Resources</b>
BL 2413	Legal Environment of Business
GR 2313	Maps and Remote Sensing
PHI 1123	Intro to Ethics

#### Junior Year

##### Fall Semester

PS 3063	Constitutional Powers (Jr.)
AIS 3203	Prof. Writing Ag, NR & Human Sci (Jr., EN 1103, EN 1113)
<b>FO 4313</b>	<b>Spatial Tech Nat Res Mgmt (GR 2313)</b>
<b>WFA 3133</b>	<b>Appl. Aquatic Terrestrial Ecol (BIO 1134, BIO 1144)</b>

Free Elective (3)

Professional Elective (3)

##### Spring Semester

<b>FO 4213</b>	<b>Forest Biometrics (ST 2113)</b>
<b>NREC 3213</b>	<b>Environmental Measurements</b>
SO 1003	Introduction to Sociology
Professional Elective (3)	
Humanities Elective (3)	

#### Senior Year

##### Fall Semester

<b>FO 4343</b>	<b>Forest Admin and Organization</b>
Free Elective (3)	
Professional Elective (3)	
Professional Elective (3)	
Professional Elective (3)	

##### Spring Semester

<b>FO 4353</b>	<b>Natural Resource Law (Jr.)</b>
<b>FO 4413</b>	<b>Natural Resource Policy (Sr.)</b>
<b>NREC 4423</b>	<b>Environmental Assessments (Sr.)</b>
Professional Elective (3)	
Professional Elective (2)	

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List

#### Natural Resources Environmental Conservation, Concentration: Natural Resource Law and Administration

##### Professional Elective (20 hours)

ENS 2103	Intro Environ Sci
AEC 3213	International Trade in Ag (AEC 2713 or EC 2123)
AEC 3233	Intro to Env Econ & Policy (AEC 2713 or EC 2123)
AEC 4233	Environmental Economics (AEC 3233 and EC 3123)
AEC 4243	Natural Resource Econ (AEC 3233 and EC 3123)
AEC 4413	Public Problems of Ag (Sr., AEC 3113 and EC 3123)
BL 4243	Entrepreneur Law
BL 4263	Environmental Law
CE 2803	Environ Engr Issues (C or better in CH 1223)
CO 1223	Intro Comm Theory
CO 4213	Political Commun
CO 4223	Adv Comm Theory (CO 1223)
EC 4223	Labor Law & Empl Pol (3 hours of EC)
FO 3003	Internship in Forestry (Jr.)
FO 3012	Int Forest Communities (PSS 3303, FO 2113)
FO 3015	For Desc & Analysis (ST 2113, FO 2213)
FO 3203	Forest Fire
FO 3213	Tree Physiology (BIO 1134, BIO 1144)
FO 4231	Intro to Wood Supply Sys (Co-req FO 3015)
FO 4443	Int'l For Res & Trad
FO 4453	Remote Sensing Appl.
GR 2313	Maps Remote
GR 3113	Conerv of Nat Res
HI 4193	US Environmental History (any intro HI)
LA 3623	Urban Planning
LA 4844	Sustainable Communities
MGT 3513	Intro Human Res Mgt
PHI 3013	Business Ethics
PHI 3113	Philosophy of Law
PHI 3313	Environmental Ethics
PHI 4143	Phil of Science

##### Professional Electives (continued)

PS 2703	Intro Public Policy (PS 1113)
PS 2713	Intro Engineer Pub Policy (EN 1113)
PS 3073	Civil Liberties (Jr.)
PS 4283	Public Opinion (Jr., PS1113)
PS 4703	Prin Pub Adm (Jr., PS1113)
PS 4743	Environmental Policy (PS 1113, PS 2703)
REF 3333	Principles of Real Estate (Jr.)
REF 3433	Real Property Evaluation (REF 3333)
REF 4333	Real Estate Law (BL 2413)
SO 4173	Environment-Society (AN 1103 or SO 1003)
SO 4703	Population Problems (SO 1003)
SO 4733	Comm: Org & Relation (Jr., SO 1003)
WFA 4463	Hum Dim WF Mgt (Jr.)

\*CFR courses not otherwise specified may be applied through the substitution process

##### Humanities Electives (3 hours):

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

Approved Substitutions List for Natural Resource Law and Administration	
Required Courses	Approved Substitutions
AEC 2713 Int to Food & Res Eco	EC 2123 Microeconomics (So., EC 2113), EC 2113 (So.)
AIS 3203 Prof. Writitng Ag, NR & Human Sci.	MGT 3213 Organ. Comm. (Jr., EN 1113) or BIO 3013 Prof. Writing for Biologists
CO 1003 Fund of Public Speaking	CO 1013 Intro to Communication
ST 2113 Introduction to Statistics	MA 2113 Intro to Stats or MA 3123 or ST 3123 Intro to Stats Inference (All require C in MA 1313 or ACT math subscore 24)

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Natural Resource and Environmental Conservation Major Resource Conservation Science (NREC/RCS)

Total Hours = 124

#### Freshman Year

Fall Semester		Spring Semester	
BIO 1134	Biological Sciences I	BIO 1144	Biological Sciences II
EN 1103	English Comp. I (ACT English subscore 17)	EN 1113	English Comp. II (EN 1103)
<b>FO 1101</b>	<b>Forest Resources Survey</b>	GR 1114	Physical Geography
AEC 2713	Intro Food Res Econ	SO 1003	Intro to Sociology
MA 1313	College Algebra (ACT math subscore 19)	MA 1613	Calc for Bus and Life Sci (C in MA 1313 or ACT math subscore 24)

#### Sophomore Year

Fall Semester		Spring Semester	
CH 1213	Chemistry I (C in MA 1313 or ACT math subscore 24)	CH 1223	Chemistry II (CH 1213)
CH 1211	Investigations in Chemistry I	CH 1221	Investigations in Chemistry II (CH 1211)
<b>FO 3113</b>	<b>Forest Recreation Management</b>	CO 1003	Fund of Public Speaking
ST 2113	Intro to Stat (C in MA 1313 or ACT math subscore 24)	<b>FO 3103</b>	<b>Computer Appl For Resources</b>
LA 1803	Landscape Arch Apprec	GR 2313	Maps and Remote Sensing
Humanities Elective (3)		PHI 1123	Intro to Ethics

#### Junior Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144, or BIO 2113)</b>	<b>FO 4213</b>	<b>Forest Biometrics (ST 2113)</b>
PSS 3303	Soils (CH 1213)	<b>NREC 3213</b>	<b>Environmental Measurements</b>
PSS 3301	Soils Lab	<b>FO 4353</b>	<b>Natural Resource Law (Jr)</b>
AIS 3203	Prof. Writing Ag, NR & Human Sci. (Jr., EN 1103, EN 1113)	Professional Elective (3)	
<b>WFA 3133</b>	<b>Appl Aquatic Terrestrial Ecol (Bio 1134, BIO 1144)</b>	Emphasis Elective (3)	
Emphasis Elective (3)			

#### Senior Year

Fall Semester		Spring Semester	
<b>FO 4343</b>	<b>Forest Admin and Organization</b>	<b>NREC 4423</b>	<b>Environmental Assessments (Sr)</b>
<b>FO 4313</b>	<b>Spatial Tech. in Nat. Res. (GR 2313)</b>	<b>FO 4413</b>	<b>Natural Resource Policy (Sr)</b>
Professional Elective (3)		FO 4463	Forest Hydrology & Water Management (PSS 3303)
Emphasis Elective (3)		Emphasis Elective (3)	
Emphasis Elective (3)		Free Elective (3)	

**\*Major courses are bolded. Grades of C or better are required in these courses.**

# SECTION III: DEPARTMENT OF FORESTRY

## 2016-2017 Approved Elective List

### Natural Resources Environmental Conservation, Concentration: Resource Conservation Science

#### Professional Elective (6 hours)

BIO 3103	Genetics I (MA 1313, BIO 1134, or BIO 2113)
BIO 3104	Ecology (BIO 1134)
BIO 4233	Living with Global Change
CE 2803	Environ Engr Issues (C or better in CH 1223)
CH 4513/4511	Org Chem I & Lab (CH 1221 and CH 1223.)
CH 4523/4521	Org Chem II & Lab (CH 4511 and CH 4513)
ENS 2103	Intro Environ Sci
FO 4453	Remote Sensing Appl.
GR 2313	Maps Remote
GR 3113	Conserv of Nat Res
GR 4603	Climatology (GR 1114 or GR 1123)
PHI 3313	Environmental Ethics
SBP 2012	Intro to Bioproduct Industry
ST 4213	Nonparametric Meth (ST 2113)

#### Humanities (3 hours)

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

#### Aquatic Emphasis Electives:

BIO 4224	Aquatic Botany (BIO 2203 and one of WFA 3133 or BIO 3104)
CE 3503/3501	Water Res Engr & Lab (C or better in CE 2803, credit or concurrent enrollment in EM 3313)
GG 3613	Water Resources (GG 1113)
GG 4613	Phys Hydrogeology (GG 3613)
GG 4623	Chem Hydrogeology (CE 3523 or GG 4613)
WFA 4233	Limnology (WFA 3133)
WFA 4383	Wetlands Ecol & Mgt (Jr., WFA 3133)

#### Terrestrial Emphasis Electives

ABE 4263	Soil and Water Mgt (ABE 2873)
BIO 2113	Plant Biology (BIO 1134)
BIO 2213	Survey Plant Kingdom
BIO 4203	Tax of Spermatophyte (BIO 2113 and BIO 2213)
BIO 4204	Plant Anatomy (BIO 2113 and BIO 2213)
BIO 4213	Plant Ecology
BIO 4214	Gen Plant Physiology (BIO 2113 and CH 1213)
EPP 3124	Forest Pest Mgt
EPP 4154	General Entomology
EPP 4263	Prin Insect Pest Mgt
FO 3213	Tree Physiology (BIO 1134, BIO 1144)
FO 4231	Intro to Wood Supply Sys (Co-req FO 3015)
Any other FO 4000-level course for which prerequisites have been satisfied	
GG 1113	Survey Earth Sci I
GG 3133	Intro Environ Geol (GG 1113)
PSS 1313	Plant Science
PSS 3133	Intro Weed Science (BIO 1203, CH 1213, or CH 1053)
PSS 4103	Forage Pasture
PSS 4313	Soil Fertility (PSS 3303)
PSS 4333	Soil Conservation (PSS 3303)
PSS 4603	Soil Chemistry (PSS 3303)

#### Approved Substitutions List for Resource Conservation Science Concentration

Required Courses	Approved Substitutions
AEC 2713 Int to Food & Res Eco	EC 2123 Microeconomics (So., EC 2113), EC 2113 (So.)
AIS 3203 Prof Writing Ag, NR, Human Sci.	MGT 3213 Organ. Comm. (Jr., EN 1113) or BIO 3013 Prof. Writing for Biologists
CO 1003 Fund of Public Speaking	CO 1013 Intro to Communication
ST 2113 Introduction to Statistics	MA 2113 Intro to Stats or MA 3123 or ST 3123 Intro to Stats Inference (All require C in MA 1313 or ACT math subscore 24)
FO 4463 Forest Hydro & Water Mgt	FO 4483 Forest Soils (PSS 3303, FO 3012, FO 4123)

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Natural Resource and Environmental Conservation Major Natural Resource Technology Concentration (NREC/NRT)

Total Hours = 124

#### Freshman Year

##### Fall Semester

BIO 1134	Biological Sciences I
CH 1043	Survey of Chemistry I
EN 1103	English Composition I (ACT English subscore 17)
<b>FO 1101</b>	<b>Forest Resources Survey</b>
MA 1313	College Algebra (ACT math subscore 19)

##### Spring Semester

AEC 2713	Intro Food Res Econ
BIO 1144	Biology II
GR 1114	Physical Geography
EN 1113	English Composition II (EN 1103)
MA 1323	Trigonometry (C in MA 1313 or ACT math subscore of 24)

#### Sophomore Year

##### Fall Semester

<b>FO 2113</b>	<b>Dendrology (BIO 1144 or BIO 2113)</b>
<b>FO 3113</b>	<b>Forest Recreation Management</b>
LA 1803	Landscape Arch Apprec
PSS 3303	Soils (CH 1043)
PSS 3301	Soils Lab
ST 2113	Intro to Statistics (C in MA 1313 or ACT math subscore of 24)

##### Spring Semester

CO 1003	Fund of Public Speaking
<b>FO 3103</b>	<b>Computer Appl For Resources</b>
FO 2213	Forest Measurements (ST 2113)
GR 2313	Maps and Remote Sensing
PHI 1123	Intro to Ethics

#### Junior Year

##### Fall Semester

AIS 3203	Prof Writing Ag, NR & Human Sci. (Jr., EN 1103, EN 1113)
<b>FO 4313</b>	<b>Spatial Tech Nat Res Mgmt (GR 2313)</b>
<b>WFA 3133</b>	<b>Appl. Aquatic Terrestrial Ecol (BIO 1134, BIO 1144)</b>
	Humanities Elective (3)
	Professional Elective (4)

##### Spring Semester

<b>FO 4213</b>	<b>Forest Biometrics (ST 2113)</b>
FO 4453	Remote Sensing Appl
<b>NREC 3213</b>	<b>Environmental Measurements</b>
	Professional Elective (3)
SO 1003	Introduction to Sociology

#### Senior Year

##### Fall Semester

<b>FO 4343</b>	<b>Forest Admin and Organization</b>
	Free Elective (3)
	Professional Elective (3)
	Professional Elective (3)
	Professional Elective (4)

##### Spring Semester

<b>FO 4353</b>	<b>Natural Resource Law (Jr.)</b>
<b>FO 4413</b>	<b>Natural Resource Policy (Sr.)</b>
<b>NREC 4423</b>	<b>Environmental Assessments (Sr.)</b>
FO 4472	GIS Nat Res Mgmt
FO 4471	GIS Nat Res Mgmt Lab
	Professional Elective (3)

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION III: DEPARTMENT OF FORESTRY

### 2016-2017 Approved Elective List

#### Natural Resources Environmental Conservation, Concentration: Natural Resource Technology

##### Professional Electives (20 hours)

ABE 2873	Land Surveying (MA 1323)
ABE 3513	GPS/GIS – AG & ENG (MA 1313 and 1323)
ABE 4263	Soil and Water Mgt (ABE 2873)
BIO 2503	Environmental Qual (any BIO course)
BIO 3104	Ecology (BIO 1134)
BIO 4203	Tax of Spermatophyte (BIO 2113 and BIO 2213)
BIO 4213	Plant Ecology
BIO 4233	Living w Global Change
BIO 4603	Ethnobotany (BIO 1134, BIO 1144)
CE 2213	Surveying (C or better in MA 1323)
CE 2803	Environ Engr Issues (C or better in CH 1223)
ENS 2103	Intro Environ Sci
EPP 3124	Forest Pest Mgt
FO 3003	Internship in Forestry (Jr.)
FO 3012	Int Forest Communities (PSS 3303, FO 2113)
FO 3015	For Desc & Analysis (ST 2113, FO 2213)
FO 4231	Intro to Wood Supply Sys (Co-req FO 3015)
FO 4411	Remote Sensing Seminar (Jr, May be repeated up to 4 credits)
FO 4453	Remote Sensing Appl.
Any other FO 4000-level course for which prerequisites have been satisfied	
GG 1111	Earth Science Lab
GG 1113	Survey Earth Sci I
GG 1121	Earth Science II Lab
GG 1123	Survey Earth Sci II (GG 1113)
GG 3613	Water Resources (GG 1113)
GR 2313	Maps Remote
GR 3113	Conserv of Nat Res
GR 3303	Survey Geospatial Tech (GR 2313)

##### Professional Electives (continued)

GR 4303	Principles of GIS (Jr.)
GR 4313	Advanced GIS (GR 4303 or consent)
GR 4323	Cartographic Sciences (Jr.)
GR 4343	Adv Remote Sensing/Geosci (GR 4433 or ECE 4423 or FO 4453 or consent)
GR 4353	Geodatabase Design (GR 4303 or consent)
GR 4363	GIS Programming (GR 4303 or consent)
PHI 3313	Environmental Ethics
PSS 4483	Intro to Remote Sensing (Sr)
REF 3333	Principles of Real Estate (Jr)
ST 4213	Nonparametric Meth (introductory statistics)
WFA 3031	Intro Wild/Fish Prac (Jr)
WFA 4253	Application of GIS in WF (Sr)
Any other WFA 4000-level course for which prerequisites have been satisfied	

##### Humanities Electives (3 hours):

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

Approved Substitutions List for Resource Conservation Science Concentration	
Required Courses	Approved Substitutions
AEC 2713 Int to Food & Res Eco	EC 2123 Microeconomics (So., EC 2113), EC 2113 (So.)
AIS 3203 Prof. Writing Ag, NR & Human Sci.	MGT 3213 Organ. Comm. (Jr., EN 1113) or BIO 3013 Prof. Writing for Biologists
CO 1003 Fund of Public Speaking	CO 1013 Intro to Communication
ST 2113 Introduction to Statistics	MA 2113 Intro to Stats or MA 3123 or ST 3123 Intro to Stats Inference (All require C in MA 1313 or ACT math subscore 24)

# SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

## DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE (WFA)

Dr. Andrew Kouba, Department Head

217 Thompson Hall

The Department of Wildlife, Fisheries, and Aquaculture's mission is to provide information and train individuals for public agencies and private interests to manage wildlife and fish resources. Working to accomplish that mission, department faculty include wildlife scientists, wildlife extension specialists, fisheries scientists, fisheries extension specialists, aquaculture extension specialists, federal wildlife and fisheries scientists in the Fish and Wildlife Cooperative Research Unit, and aquaculture scientists. The Department also has close ties with the USDA APHIS Wildlife Services and the Mississippi Department of Wildlife, Fisheries, and Parks.

### PROFESSIONAL EXPECTATIONS OF WILDLIFE, FISHERIES, AND AQUACULTURE STUDENTS

Natural resource conservation and management is a profession, and individuals training within this vocation are expected to conduct themselves as professionals, beginning with their education. Behaviors and habits developed now will carry over and affect career progress. Natural resources conservation and management is more than animals and plants; working with people is an important element of a successful career. Respecting others, being aware of how your behavior affects them, and the impression you are conveying is crucial to professional development and how society views the profession. Your demeanor and actions reflect on you, Mississippi State University, the College of Forest Resources, the Department of Wildlife, Fisheries, and Aquaculture, our faculty, the student body, our alumni, and our profession as a whole. Therefore, you should conduct yourself appropriately regarding to conduct, appearance, and respect for others.

The Department of Wildlife, Fisheries, and Aquaculture has collectively agreed on a set of expectations and consequences for students relative to behavior and habits to apply in classes, during transportation and laboratories, which include trips to private property, professional meetings, federal and state forests, refuges, field and industrial operations, and field sites.

### WILDLIFE, FISHERIES, AND AQUACULTURE CONCENTRATIONS

Students must complete a specified major core curriculum and one of six academic pathways:

1. Conservation Law Enforcement
2. Human-Wildlife Conflicts
3. Wildlife Agriculture Conservation
4. Wildlife, Fisheries, and Aquaculture Science
5. Wildlife Pre-Veterinary 3+1 Program
6. Wildlife Veterinary 4 Year

**Conservation Law Enforcement** — This program is for students who seek employment following receipt of a B.S. degree and to obtain positions related to natural resource law enforcement positions (such as Conservation Officers, Park Rangers, Wildlife Inspectors). Students who complete this concentration are eligible for certification by The Wildlife Society. Continuation on to graduate school in human dimensions, conservation law enforcement, or wildlife biology is possible.

**Human-Wildlife Conflicts** — This curriculum provides the educational background for those students wishing to pursue a career as wildlife biologists with a strong background in wildlife damage management to resolve human-wildlife conflicts. Successful graduates of this program are eligible for certification by the Wildlife Society. Students completing this concentration may seek employment immediately following graduation; however, competition for positions may be intense. Students will be equally prepared to pursue graduate degrees in Human-Wildlife Conflicts or other areas of Wildlife Science.

**Wildlife Agriculture Conservation** — This curriculum provides the educational background for students pursuing careers as wildlife biologists or conservationists in agricultural areas which requires a strong background in both wildlife biology and agricultural science. Successful graduates of this program are qualified to apply as Certified Wildlife Biologists to The Wildlife Society, and will meet minimum educational requirements for



## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### WILDLIFE, FISHERIES AND AQUACULTURE MAJOR

NRCS conservationist positions. Students completing this concentration may seek employment immediately following graduation. Students will be prepared to pursue one or more graduate degrees (M.S., Ph.D.) in wildlife biology and related natural resource fields

**Wildlife, Fisheries, and Aquaculture Science** — This program is for students who intend to pursue a master's degree. Employment with this concentration after the B.S. is earned is possible, but competition is intense and salaries can be low. Students are eligible for certification by the Wildlife Society, the American Fisheries Society, and the Ecological Society of America, but are not qualified to become Registered Foresters in Mississippi. This degree is intended for academically strong students who can maintain a 3.00 or higher GPA, which is the minimum GPA required for admittance into graduate programs. This concentration provides for desired commonality, a solid foundation in natural resource management, specialized discipline training, and flexibility to meet desired and unique career goals of students.

**Wildlife Pre-Veterinary 3+1 Program** — Integration of wildlife science and management and veterinary medicine has become important with current diverse uses

of wildlife and other renewable natural resources. As wildlife habitats dwindle and animal populations become more compressed, attention towards disease diagnosis and abatement must increase. Students earn a 3+1 undergraduate degree program in Wildlife, Fisheries and Aquaculture. The student's course of study is within the Department of Wildlife, Fisheries and Aquaculture for the first three years. Then, if accepted into the MSU College of Veterinary Medicine, the student's final year consists of successful matriculation in the first year of study in the Veterinary Program. Successful graduates of this program are qualified to apply for Certified Wildlife Biologist with The Wildlife Society as well as being qualified to practice veterinary medicine.

**Wildlife Veterinary** — Students that decide to complete their B.S. degree before applying to a veterinary college or students that decide to pursue other Wildlife, Fisheries and Aquaculture career paths, but are interested in having a strong background in basic veterinary medicine should pursue this concentration. This four year program will provide the foundation to pursue graduate studies that require a strong background in veterinary medicine.

### WILDLIFE, FISHERIES AND AQUACULTURE ACADEMIC POLICIES AND PROGRAMS

#### WFA Core Courses

Grades of C or better are required in WFA core courses. The following are core courses in the WFA major: BIO 1134, BIO 1144, CH 1053, FO 2113, MA 1613, PSS 3301, PSS 3303, ST 3123, WFA 3133, WFA 4123, WFA 4223, WFA 4473, and the zoology elective course.

#### WFA Major GPA Course Performance Requirements

Students may not apply courses with a grade of D to their WFA core GPA requirements. Only course work with a grade of C or higher will be applied as defined by the department above. Note: Pre-vet majors must earn grades of C or higher on all coursework required for Vet School.

#### WFA Core GPA Calculations

Grades of D and F will not be calculated in the defined WFA major core GPA. A student must retake a WFA core course in which a grade of D or F is earned.

#### Biology Minor

Students pursuing the WLVM concentration should declare the Biology minor as all courses needed to satisfy the Biology minor are required. Other WFA students are encouraged to review the Biology Minor requirements located in the General Information section of this handbook.

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### WILDLIFE, FISHERIES AND AQUACULTURE ACADEMIC POLICIES AND PROGRAMS

#### **Correspondence Courses**

Independent Study courses are not applied in the WFA major.

#### **Directed Individual Study Courses**

Directed Individual Study (DIS) courses can be applied to the WFA major with prior approval. The approval process requires the signatures of the student, the instructor, the student's advisor, the department head(s) of the instructor and the student, and the WFA undergraduate coordinator. The title, justification of the course, course description, and applicability of the course must be provided. Once approved, the DIS Form must be on file in the Office of Student Services.

#### **University of Southern Mississippi - Gulf Coast Research Laboratory Summer Field Program**

Students may take courses in marine biology at the University of Southern Mississippi's (USM) Gulf Coast Research Laboratory (GCRL) to satisfy professional electives and/or other course requirements. Visit [www.usm.edu/gcrl](http://www.usm.edu/gcrl) for more information on summer course offerings. Substitution approval by the department is required prior to enrollment in the USM Summer Field Program. See your advisor or the Department's Undergraduate Coordinator for details.

#### **Internships**

The course work required is designed to ensure that the student is well prepared to effectively compete within the job market or for graduate school. Additionally, the laboratories of many of the required courses provide students with experience important in natural resources management. However, it is critical that students have the opportunity to more actively participate in activities associated with his or her intended career above and beyond what the laboratories provide.

An internship provides students with the opportunity to: work with prospective employers to obtain "hands-on" experience; get to know wildlife and/or fisheries professionals outside of the University; and verify that his

or her career decision is the right choice. An internship can be applied as a professional elective to the WFA major with prior approval; only 3 hours (one internship) may be applied. Mississippi Department of Wildlife, Fisheries and Parks, U.S. Fish and Wildlife Service, US Forest Service, and Weyerhaeuser are among the agencies that provide internship opportunities.

Academic credit can be received if the student desires. A student must apply for an internship during pre-registration. The approval process requires signatures from the instructor, the advisor, the department's undergraduate program coordinator, and the department head.

#### **Student Leadership Recognition Program**

The Student Leadership Recognition Program was started in the Forestry Department with the purpose of introducing undergraduate and graduate students to all activities offered by the Department, the College of Forest Resources (CFR), and beyond to stimulate them to voluntarily participate at all levels of activity, and to recognize the importance of participating. The program is now college-wide and Wildlife, Fisheries and Aquaculture and Sustainable Bioproducts majors may participate.

Beyond gaining educational and social benefits, students will become more engaged in activities whereby they can network with faculty, their fellow students, and those in the greater natural resources community. This recognition of being a student leader and one who is active in extracurricular activities would also be a worthy addition to student resumes.

Interested students should see Dr. Stephen C. Grado, Room 357 Thompson Hall, 662-325-2792.

#### **Transfer Credit**

Only transfer courses with a grade of C or higher will be applied to the WFA major.

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### WILDLIFE, FISHERIES AND AQUACULTURE CURRICULA

A student enrolled in the **Wildlife, Fisheries and Aquaculture (WFA) major** must complete a specified core curriculum and one of six academic concentrations in the major:

- Conservation Law Enforcement
  - Human-Wildlife Conflicts
  - Wildlife Agriculture Conservation
  - Wildlife, Fisheries and Aquaculture Science
  - Wildlife Pre-Veterinary 3+1 Program
  - Wildlife Veterinary
- Pre-requisites are shown in parentheses.
  - Approved substitutions for each concentration are listed on the corresponding concentrations' electives list page. Approved substitutions do not require processing a substitution form.
  - The list of approved electives is provided following the respective example curriculum pages.
  - The semester courses that are taught every other year are shown in parentheses.

An example curriculum for each of these concentrations follows. The example curricula should be followed by those students entering MSU as freshmen or transferring during the Fall 2015, Spring 2016, or Summer 2016 semesters and by those students changing majors into a CFR major from another major on campus.

Acronyms used for Department of Wildlife, Fisheries and Aquaculture Concentrations	
CLE	Conservation Law Enforcement
HWC	Human-Wildlife Conflicts
WLAC	Wildlife Agriculture Conservation
WLFS	Wildlife, Fisheries, and Aquaculture Science
WLVM	Wildlife Veterinary
PVSF	Wildlife Pre-Veterinary 3+1 Program

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Major Conservation Law Enforcement Concentration (CLE)

Total Hours = 124

#### Freshman Year

##### Fall Semester

<b>BIO 1134</b>	<b>Biological Sciences I</b>
CH 1043	Survey of Chemistry I
EN 1103	English Comp. I (ACT subscore 17)
SO 1003	Intro. to Sociology
WFA 1102	Wildlife and Fisheries Profession (FR, SO, or instructor consent)

##### Spring Semester

<b>BIO 1144</b>	<b>Biological Sciences II</b>
<b>CH 1053</b>	<b>Survey of Chemistry II (CH 1043)</b>
CH 1051	Experimental Chem. Lab
EN 1113	English Composition II (EN 1103)
CO 1003	Fund. of Public Speaking
	Humanities Elective (3)

#### Sophomore Year

##### Fall Semester

<b>FO 2113</b>	<b>Dendrology (BIO 1144 or BIO 2113)</b>
<b>MA 1613</b>	<b>Calc. for Bus. &amp; Life. Sci. (C in MA 1313 or ACT Math subscore 24)</b>
<b>WFA 3133</b>	<b>App. Aqu. &amp; Terr. Eco. (BIO 1134 &amp; 1144)</b>
<b>PSS 3303</b>	<b>Soils (CH 1043)</b>
<b>PSS 3301</b>	<b>Soils Lab (CH 1043)</b>
	Fine Arts Elective (3)

##### Spring Semester

PSY 1013	General Psychology
<b>ST 3123</b>	<b>Intro. to Stat. Infer. (C in MA 1313 or ACT Math subscore 24)</b>
	Economics Elective (3)
	Ethics Elective (3)
CRM 1003	Crime and Justice in America

#### Junior Year

##### Fall Semester

<b>WFA 4123</b>	<b>WF Biometrics (ST 3123 &amp; C in MA 1613)</b>
WFA 4313	Fisheries Management (WFA 3133)
WFA 4463	Human Dim. of Fish & Wildlife Mgt. (Jr.)
	Nutrition/Physiology/Anatomy Elective (3)
	Professional Elective (3)

##### Spring Semester

AIS 3203	Prof Writing Ag, NR & Hum Sci
	Human Resource Management Elective (3)
CRM 3313	Deviant Behavior (SO 1003 & CRM 1003)
WFA 4243	Wildlife Techniques (Jr.)
	<b>Zoology Elective (4)</b>

#### Senior Year

##### Fall Semester

<b>WFA 4223</b>	<b>Wildlife Plant ID (BIO 1134 &amp; BIO 1144 &amp; WFA 3133) (FL Odd)</b>
WFA 4433	Mammalogy (BIO 1134, BIO 1144, and WFA 3133)
WFA 4153	Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)
WFA 4353	Fish and Wild. Policy & Law (Sr.)
	Natural Resource Management Elective (3)

##### Spring Semester

WFA 4443	Ornithology (BIO 1134, BIO 1144, and WFA 3133)
CRM 3123	Policing and Society (SO 1003 and CRM 1003)
WFA 4253	Application of Spatial Tech in WF (Sr.)
<b>WFA 4473</b>	<b>Wildlife &amp; Fisheries Practices (Sr., WFA 3133 &amp; WFA 4153)</b>
	Professional Elective (3)

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Major Human-Wildlife Conflicts Concentration (HWC)

Total Hours = 124

#### Freshman Year

Fall Semester		Spring Semester	
<b>BIO 1134</b>	<b>Biological Sciences I</b>	<b>BIO 1144</b>	<b>Biological Sciences II</b>
CH 1043	Survey of Chemistry I	<b>CH 1053</b>	<b>Survey of Chemistry II (CH 1043)</b>
Humanities Elective (3)		EN 1113	English Composition II (EN 1103)
EN 1103	English Comp. I (ACT subscore 17)	<b>MA 1613</b>	<b>Calc. for Bus. and Life Sci. (C in MA 1313 or ACT math subscore 24)</b>
WFA 1102	Wildlife and Fisheries Profession (FR, SO, or instructor consent)	CO 1003	Fund. of Public Speaking

#### Sophomore Year

Fall Semester		Spring Semester	
<b>FO 2113</b>	<b>Dendrology (BIO 1144 or BIO 2113)</b>	BIO 3103	Genetics (MA 1313, BIO 1134)
<b>PSS 3303</b>	<b>Soils (CH 1043)</b>	Fine Arts Elective (3)	
<b>PSS 3301</b>	<b>Soils Lab (CH 1043)</b>	Humanities Elective (3)	
<b>ST 3123</b>	<b>Intro. to Stat Infer. (C in MA 1313 or ACT math subscore 24)</b>	Social Science Elective (3)	
<b>WFA 3133</b>	<b>App. Aq. &amp; Terr. Ecol. (BIO 1134 &amp; 1144)</b>	<b>Zoology Elective (4)</b>	
Economics Elective (3)			

#### Junior Year

Fall Semester		Spring Semester	
<b>WFA 4123</b>	<b>WF Biometrics (ST 3123 &amp; C in MA 1613)</b>	AIS 3203	Prof Writing Ag, NR & Hum Sci
<b>WFA 4223</b>	<b>Wildlife Plant ID (BIO 1134 &amp; BIO 1144 &amp; WFA 3133) (FL Odd)</b>	WFA 4243	Wildlife Techniques (Jr.)
WFA 4273	Eco. & Mgt. of Human-Wildlife Conflicts (WFA 3133) (FL Odd)	WFA 4443	Ornithology (BIO 1134, BIO 1144, and WFA 3133)
WFA 4283	Human-Wildlife Conflicts Techniques (WFA 3133) (FL Odd)	Professional Elective (3)	
WFA 4463	Human Dim. Fish and WFA Mgt. (Jr.)	Professional Elective (3)	
		Professional Elective (3)	

#### Senior Year

Fall Semester		Spring Semester	
WFA 3013	Internship in HWC	WFA 4313	Fisheries Mgt. (WFA 3133) or WFA 4133 Fisheries Science (ST 3123)
WFA 4153	Prin. Wildlife Conservation & Mgt. (So., WFA 3133 or FO 4123)	<b>WFA 4473</b>	<b>Wildlife &amp; Fisheries Prac. (Sr., WFA 3133 &amp; WFA 4153)</b>
WFA 4353	Fish & Wildlife Policy & Law Enforcement (Sr.)	WFA 4521	Advanced Topics in Human-Wildlife Conflicts II (WFA 4512) (SP Odd)
WFA 4433	Mammalogy (BIO 1134 &, BIO 1144, and WFA 3133)		Nutrition/Physiology/Anatomy Elective (3)
WFA 4512	Advanced Topics in Human-Wildlife Conflicts I (WFA 4273, WFA 4283) (FL Even)		Professional Elective (4)

\*Major courses are bolded. Grades of C or better are required in these courses.

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Major Wildlife Agriculture Conservation Concentration (WLAC)

Total Hours = 124

#### Freshman Year

##### Fall Semester

**BIO 1134 Biological Sciences I**  
CH 1043 Survey of Chemistry I  
EN 1103 English Comp. I (ACT subscore 17)  
WFA 1102 Wildlife and Fisheries Profession (FR, SO, or instructor consent)  
Humanities Elective (3)

##### Spring Semester

**BIO 1144 Biological Sciences II**  
**CH 1053 Survey of Chemistry II (CH 1043)**  
EN 1113 English Composition II (EN 1103)  
**MA 1613 Calc. for Bus. and Life Sci. (C in MA 1313 or ACT math subscore 24)**  
CO 1003 Fund. of Public Speaking

#### Sophomore Year

##### Fall Semester

AEC 2713 Into to Food & Resource Economics  
**FO 2113 Dendrology (BIO 1144 or BIO 2113)**  
**PSS 3303 Soils (CH 1043)**  
**PSS 3301 Soils Lab (CH 1043)**  
**WFA 3133 App. Aq. & Terr. Eco. (BIO 1134 & 1144)**  
Humanities Elective (3)

##### Spring Semester

BIO 3103 Genetics (MA 1313, BIO 1134)  
**ST 3123 Intro. to Stat Infer. (C in MA 1313 or ACT math subscore 24)**  
Fine Arts Elective (3)  
Social Science Elective (3)  
**Zoology Elective (4)**

#### Junior Year

##### Fall Semester

AIS 3203 Prof Writing Ag, NR & Hum Sci  
**WFA 4123 WF Biometrics (ST 3123 & C in MA 1613)**  
WFA 4153 Prin. Wildlife Conservation and Mgt. (So., WFA 3133 & FO 4123)  
**WFA 4223 Wildlife Plant ID (BIO 1134 & BIO 1144 & WFA 3133) (FL Odd)**  
Animal Science Elective (3)

##### Spring Semester

FO 4223/4221 Practice of Silviculture + Lab (WFA 3133 & WFA 4223)  
WFA 4243 Wildlife Techniques (Jr.)  
WFA 4373 Cons. in Ag. Landscapes (SP Odd) **OR** WFA 4363 WF Admin. and Communication (Jr.)  
PSS 4633 Weed Biology/Ecology (Jr) or PSS 3133 Weed Science  
Agriculture-Wildlife Elective (3)

#### Senior Year

##### Fall Semester

WFA 4313 Fisheries Mgt. (WFA 3133) **OR** WFA 4133 Fisheries Sci. (ST 3123) (SP Even)  
WFA 4353 Fish & Wildlife Policy & Law Enforcement (Sr)  
Crop Science Elective (3)  
Nutrition/Physiology/Anatomy Elective (3)  
Organismal Elective (3)

##### Spring Semester

WFA 4253 Application of Spatial Tech in WF. (Sr)  
WFA 4363 WF Admin. and Communication (Jr.) **OR** WFA 4373 Cons. in Ag. Landscapes (SP Odd)  
**WFA 4473 Wildlife & Fisheries Prac. (Sr., WFA 3133 & WFA 4153)**  
Agriculture-Wildlife Elective (3)  
Organismal Elective (3)

**\*Major courses are bolded. Grades of C or better are required in these courses.**

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

**2016-2017 Wildlife, Fisheries and Aquaculture Major  
Wildlife, Fisheries, and Aquaculture Science Concentration (WLFS)  
Total Hours = 124**

### Freshman Year

Fall Semester		Spring Semester	
<b>BIO 1134</b>	<b>Biological Sciences I</b>	<b>BIO 1144</b>	<b>Biological Sciences II</b>
CH 1043	Survey of Chemistry I	<b>CH 1053</b>	<b>Survey of Chemistry II (CH 1043)</b>
Humanities Elective (3)		EN 1113	English Composition II (EN 1103)
EN 1103	English Comp. I (ACT subscore 17)	<b>MA 1613</b>	<b>Calc. for Bus. and Life Sci. (C in MA 1313 or ACT math subscore 24)</b>
WFA 1102	Wildlife and Fisheries Profession (FR, SO, or instructor consent)	CO 1003	Fund. of Public Speaking

### Sophomore Year

Fall Semester		Spring Semester	
<b>PSS 3303</b>	<b>Soils (CH 1043)</b>	BIO 3103	Genetics (MA 1313, BIO 1134)
<b>PSS 3301</b>	<b>Soils Lab (CH 1043)</b>	FO 2113	Dendrology (BIO 1144)
<b>ST 3123</b>	<b>Intro. to Stat Infer. (C in MA 1313 or ACT math subscore 24)</b>	Fine Arts Elective (3)	
<b>WFA 3133</b>	<b>Appl. Aq. &amp; Terr. Ecol. (BIO 1134 &amp; 1144)</b>	Social Science Elective (3)	
Economics Elective (3)		<b>Zoology Elective (4)</b>	
Humanities Elective (3)			

### Junior Year

Fall Semester		Spring Semester	
<b>WFA 4223</b>	<b>Wildlife Plant ID (BIO 1134 &amp; BIO 1144 &amp; WFA 3133) (FL Odd)</b>	AIS 3203	Prof Writing Ag, NR & Hum Sci
<b>WFA 4123</b>	<b>Wildlife &amp; Fisheries Biometrics (ST 3123 &amp; C in MA 1613)</b>	FO 4223/4221	Practice of Silviculture + Lab (WFA 3133) OR Invertebrate Elective (4)
WFA 4153	Prin. Wildlife Conservation and Mgt. (So., WFA 3133 or FO 4123)	WFA 4133	Fisheries Sci. (ST 3123) (SP Even) <b>OR</b> WFA 4313 Fisheries Mgt. (WFA 3133)
WFA 4353	Fish & Wildlife Policy & Law Enforcement (Sr)	WFA 4243	Wildlife Techniques (Jr.)
Professional Elective (3)		Nutrition/Physiology/Anatomy Elective (3)	

### Senior Year

Fall Semester		Spring Semester	
WFA 4233	Limnology (WFA 3133) OR WFA 4383 Wetlands Ecol & Mgt. (Jr., WFA 3133) (FL Even)	<b>WFA 4473</b>	<b>Wildlife &amp; Fisheries Prac. (Sr., WFA 3133 &amp; WFA 4153)</b>
WFA 4463	Human Dim. Fish and WFA Mgt. (Jr.)	Organismal Elective* (3) <b>OR</b> WFA 4183 Prin. of Aquacult. (SP Even) (BIO 1134, BIO 1144)	
Organismal Elective (3)		Professional Elective (3)	
Professional Elective (3)		Professional Elective (3)	
Professional Elective (3)		Professional Elective (3)	

\* Required for TWS Certification

**\*Major courses are bolded. Grades of C or better are required in these courses.**

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Major Wildlife Veterinary Concentration (WLVM)

**Total Hours = 124**

This concentration is offered to students who wish to fulfill the academic requirements for entrance into veterinary school but wish to complete a baccalaureate program before entering into veterinary school. This curriculum satisfies the academic requirements of TWS Wildlife Certification.

#### Freshman Year

Fall Semester		Spring Semester	
<b>BIO 1134</b>	<b>Biological Sciences I</b>	<b>BIO 1144</b>	<b>Biological Sciences II</b>
CH 1213	Chemistry I (C in MA 1313 or ACT math subscore 24)	CH 1221	Investigations in Chem. II (CH 1211)
CH 1211	Investigations in Chem. I	CH 1223	Chemistry II (CH 1213)
EN 1103	English Comp. I (ACT subscore 17)	CO 1003	Fund. of Public Speaking
<b>MA 1613</b>	<b>Calc. for Bus. &amp; Life Sci. (C in MA 1313 or ACT math subscore 24)</b>	EN 1113	English Composition II (EN 1103)
WFA 1102	Wildlife & Fisheries Profession (FR or SO.)	PH 1113	General Physics I (MA 1323 or ACT math subscore 26)

#### Sophomore Year

Fall Semester		Spring Semester	
BIO 3304	Gen. Microbio. (CH 1053 or 1223)	BCH 4013	Elem. Biochemistry (CH 2503 or BIO 1134)
CH 4513	Organic Chem. I (CH 1223/1221)	BIO 3103	Genetics (MA 1313, BIO 1134)
CH 4511	Organic Chem. I Lab (CH 1223/1221)	CH 4523	Organic Chem. II (CH 4513/4511)
<b>FO 2113</b>	<b>Dendrology (BIO 1144)</b>	CH 4521	Organic Chem. II Lab (CH 4513/4511)
PH 1123	General Physics II (PH 1113)	<b>ST 3123</b>	<b>Intro. to Stat. Infer. (MA 1313 or ACT math subscore 24)</b>
			<b>Zoology Elective (4)</b>

#### Junior Year

Fall Semester		Spring Semester	
BIO 2103	Cell Biology (6 hrs. bio & CH 1223)	AIS 3203	Prof Writing Ag, NR & Hum Sci
<b>WFA 3133</b>	<b>App Aquatic &amp; Terr. Eco. (BIO 1134, BIO 1144)</b>	WFA 4263	WF Diseases (BIO 1134 & 1144) (SP Even) <b>OR</b> WFA 4323
<b>WFA 4123</b>	<b>WF Biometrics (ST 3123 &amp; C in MA 1613)</b>	WFA 4443	WF Nut. & Phys. (BIO 1134 & 1144) (SP Odd)
Humanities Elective (3)			Ornithology (BIO 1134, BIO 1144, and WFA 3133)
Social Science Elective (3)			Economics Elective (3)
			Humanities Elective (3)

#### Summer Semester

Externship (>480 hours of work experience)

#### Senior Year

Fall Semester		Spring Semester	
WFA 4153	Prin. Wildlife Cons. and Mgt. (So., WFA 3133 or FO 4123)	BIO 4413	Immunology (BIO 3304, CH 4513) or BIO 3303 Parasitology
<b>WFA 4223</b>	<b>Wildlife Plant ID (BIO 1134 &amp; BIO 1144 &amp; WFA 3133) (FL Odd)</b>	WFA 4243	Wildlife Techniques (Jr.)
WFA 4433	Mammalogy (BIO 1134, BIO 1144, and WFA 3133)	WFA 4323	WF Nut. & Phys. (BIO 1134 & 1144) (SP Odd) <b>OR</b> WFA 4263 Wildlife Diseases (BIO 1134 & 1144) (SP Even)
WFA 4353	Fish and Wild. Policy & Law (Sr)	<b>WFA 4473</b>	<b>Wildlife &amp; Fisheries Prac. (Sr., WFA 3133 &amp; WFA 4153)</b>
Fine Arts Elective (3)			Policy Elective (3)

**\*Major courses are bolded. Grades of C or better are required in these courses.**



## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Major

#### Wildlife Pre-Veterinary 3+1 Concentration (PVSF)

Total Hours = 115

This integrated curriculum allows the student to pursue a 3 +1 undergraduate degree program in Wildlife, Fisheries and Aquaculture Science for three years and then, if accepted, matriculate into the Veterinary Medicine program in the College of Veterinary Medicine. MSU requires a minimum of 124 hours for the undergraduate degree. Therefore, to qualify for the B.S. degree in Wildlife, Fisheries and Aquaculture, a student must complete the 3 years of the undergraduate course work in the wildlife pre-veterinary program and also successfully complete the first year in the Veterinary Medicine curriculum.

#### Freshman Year

Fall Semester		Spring Semester	
<b>BIO 1134</b>	<b>Biological Sciences I</b>	<b>BIO 1144</b>	<b>Biological Sciences II</b>
CH 1213	Chemistry I (C in MA 1313 or ACT math subscore 24)	CH 1221	Investigations in Chem. II (CH 1211)
CH 1211	Investigation in Chem. I	CH 1223	Chemistry II (CH 1213)
Social Science Elective (3)		EN 1113	English Composition II (EN 1103)
EN 1103	English Comp. I (ACT subscore 17)	PH 1113	General Physics I (MA 1323 or ACT math subscore 26)
<b>MA 1613</b>	<b>Calc. for Bus. and Life Sci. (C in MA 1313 or ACT math subscore 24)</b>	CO 1003	Fund. of Public Speaking
WFA 1102	Wildlife and Fisheries Profession (FR, SO)		

#### Summer Semester

BIO 3103 Genetics (MA 1313, BIO 1134)  
PH 1123 General Physics II (PH 1113)

#### Sophomore Year

Fall Semester		Spring Semester	
BIO 3304	Gen. Microbio. (CH 1053 or 1223)	BCH 4013	Elem. Biochemistry (CH 2503 or BIO 1134)
CH 4513	Organic Chem. I (CH 1223/1221)	CH 4523	Organic Chem. II (CH 4513/4511)
CH 4511	Organic Chem. 1 Lab (CH 1223/1221)	CH 4521	Organic Chem. II Lab (CH 4513/4511)
FO 2113	Dendrology (BIO 1144 or BIO 2113)	<b>ST 3123</b>	<b>Intro to Stat. (C in MA 1313 or ACT math subscore 24)</b>
<b>WFA 3133</b>	<b>Appl. Aq. &amp; Ter. Ecol. (BIO 1134 &amp; 1144)</b>		Economics Elective (3)
Humanities Elective (3)			<b>Zoology Elective (4)</b>

#### Summer Semester

Humanities Elective (3)

#### Junior Year

Fall Semester		Spring Semester	
WFA 4433	Mammalogy (BIO 1134, BIO 1144, and WFA 3133)	AIS 3203	Prof Writing Ag, NR & Hum Sci
<b>WFA 4123</b>	<b>WF Biometrics (ST 3123 &amp; C in MA 1613)</b>	BIO 4413	Immunology (BIO 3304, CH 4513) <b>OR</b> BIO 3303 Parasitology (BIO 1134)
WFA 4153	Prin. Wildlife Conservation and Mgt. (So., WFA 3133 or FO 4123)	WFA 4443	Ornithology (BIO 1134, BIO 1144, & WFA 3133)
<b>WFA 4223</b>	<b>Wildlife Plant ID (BIO 1134 &amp; BIO 1144 &amp; WFA 3133) (FL Odd)</b>	WFA 4243	Wildlife Techniques (Jr.)
WFA 4353	Fish & Wildlife Policy & Law Enforcement (Sr)	<b>WFA 4473</b>	<b>Wildlife &amp; Fisheries Prac. (Sr., WFA 3133 &amp; WFA 4153)</b>
Fine Arts Elective (3)			Policy Elective (3)

\*Major courses are bolded. Grades of C or better are required in these courses.

# SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

## 2016-2017 Wildlife, Fisheries and Aquaculture Approved Elective List

### All Concentrations

#### Agriculture-Wildlife Professional Elective

AEC 4343	Advanced Farm Mgt. (Sr, EC 3123, AEC 4523)
AEC 4413	Public Prob. in Agriculture (Sr, EC 3123, AEC 3113)
FO 3203	Forest Fire
FO 4483	Forest Soils (SP Odd) (PSS 3303, FO 3012, FO 4123)
GG 3613	Water Resources (GG 1113)
GG 4613	Physical Hydrology (GG 3613)
PSS 3133	Intro to Weed Science (BIO 2113, CH 1053)
PSS 4373	Geospatial Agronomic Mgt. (PSS 3303, PSS 3301)
PSS 4603	Soil Chemistry (Spring) (PSS 3303)
PSS 4633	Weed Biology/Ecology (BIO 2113, PSS 3133)
PSS 4813	Herbicide Technology (PSS 3133)
WFA 4133	Fisheries Science (ST 3123) (SP)
WFA 4183	Principles & Pract. of Aquaculture (SP Even) (BIO 1134, BIO 1144)
WFA 4273	Eco./Mgt. Hum-WF Conflicts (WFA 3133) (FL Odd)
WFA 4283	Hum-WF Conf. Techniques (WFA 3133) (FL Odd)
WFA 4383	Wetlands Ecology & Mgt. (Jr., WFA 3133) (FL Even)
WFA 4394	Waterfowl Eco (Jr., WFA 3133) (FL Odd)
WFA 4463	Hum. Dim. of Fish & Wildlife Mgt. (Jr.)
WFA 4484	Upland Avian Eco. & Mgt. (Jr., WFA 3133, WFA 4153) (FL Even)
WFA 4494	Lg Mam Eco/Mgt. (Jr., WFA 3133 & 4153) (FL Even)

#### Crop Science Elective

PSS 4103	Forage and Pasture Crops (Fall) (Jr)
PSS 4123	Grain Crops (Spring) (Jr)
PSS 4133	Fiber and Oilseed Crops (Spring) (Jr)
PSS 4453	Vegetable Production (Fall) (PSS 3303, PSS 3301)

#### Animal Science Elective

ADS 1113	Animal Science
ADS 3312	Livestock Mgt. Practices (ADS 1113)
ADS 4114	Animal Nutrition (CH 4513/CH 4511)
ADS 4123	Animal Breeding (PO 3103)
ADS 4223	Goat & Sheep Production (ADS 1113, Jr.) ADS 1121
ADS 4323	Beef Cattle Science (ADS 1113) ADS 1121
ADS 4813	Dairy Farm Management (ADS 1113) ADS 1121

#### Economics Elective

AEC 2713	Intro. to Agricultural Economics
EC 2113	Prin. Macroeconomics (So.)
EC 2123	Prin. Microeconomics (EC 2113, So.)

#### Ethics Elective

PHI 1123	Intro Ethics
PHI 3013	Business Ethics

#### Fine Arts Elective

ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
CO 1503	Intro. to Theater
LA 1803	Landscape Architecture Appr.
MU 1103/AAS 1103	African American Music
MU 1113	History and Appr. of Music
PE 1323	History and Appr. of Dance
PSS 2343	Floral Design
TKI 2413	Hist. and Appr. of the Artcrafts

#### Human Resources Management Elective

AIS 3803	Lead Dev. Agr. and Life Science
CO 3293	Corporate Comm. (Jr.)
FO 4343	For. Admin. and Organization
MGT 3114	Prin. Mgt. & Prod. (EC 2113, BQA 2113, Jr.)
MGT 3213	Organizational Comm. (EN 1113, Jr.)
MGT 3513	Intro. to Human Resource Mgt.
WFA 4363	Wildlife & Fish Adm. & Comm. (Jr.)

#### Humanities Elective

ARC 2313/3313	History of Architecture
EN 2203	Intro. to Literature (EN 1103, EN1113)
EN 2213/2223	English Literature (EN 1103, EN1113)
EN 2243/2253	American Literature I (EN 1103, EN1113)
EN 2273/2283	World Literature I (EN 1103, EN1113)
FL 1113/1123	Elem. Foreign Language <sup>1</sup>
HI 1063/1073	Early or Modern US History
HI 1163/1173	World History I or II
HI 1213/1223	Early or Modern Western World
HI 1313/1323	East Asian Civilizations I or II
PHI 1103	Intro. to Philosophy
PHI 1123	Intro. to Ethics
REL 1103	Intro. to Religion
REL 3213	World Religions I
REL 3223	World Religions II

<sup>1</sup> French, German, Greek, Japanese, Latin, Russian and Spanish

#### Invertebrate Elective

EPP 3124	Forest Pest Management
EPP 4154	General Entomology
EPP 4164	Insect Taxonomy (EPP 4154)
EPP 4173	Med & Vet Entomology (EPP 4154)
EPP 4234	Field Crop Insects (EPP 2213 or 4154)
EPP 4263	Prin. of Insect Pest Mgt.
EPP 4313	Forensic Entomology

# SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

## 2016-2017 Wildlife, Fisheries and Aquaculture Approved Elective List

### All Concentrations

#### Natural Resources Management Elective (For CLE only)

BCH 2013	Intro to Forensic Science (BIO 1134, BIO 1144)
EPP 4313	Forensic Entomology
FO 3113	Forest Recreation Management
FO 4472/4471	GIS Nat. Res. Mgt./Lab
GR 4303	Principles of GIS
GR 4313	Advanced GIS (GR 4303)
WFA 4183	P&P. of Aquacul. (BIO 1134 & 1144) (SP Even)
WFA 4253	Application of Spatial Tech in WF (Sr.)
WFA 4273	Eco./Mgt. Hum-WF Conflict (WFA 3133) (FL Odd)
WFA 4283	Hum-Wildlife Conflict Tech (WFA 3133) (FL Odd)
WFA 4313	Fisheries Mgt. (WFA 3133)
WFA 4363	Wildlife And Fish. Admin. And Comm. (Jr.)
WFA 4383	Wetlands Eco. & Mgt. (Jr., WFA 3133) (FL Even)
WFA 4394	Waterfowl Eco. & Mgt. (Jr., WFA 3133) (FL Odd)
WFA 4463	Hum. Dim. of Fish & Wildlife Mgt. (Jr.)
WFA 4484	Upland Avian Eco. & Mgt. (Jr., WFA 3133, WFA 4153) (FL Even)
WFA 4494	Large Mam Ecology & Mgt (Jr., WFA 3133, WFA 4153) (FL Even)

#### Nutrition/Physiology/Anatomy Elective

ADS 4114	Animal Nutrition
BIO 3504	Comparative Anatomy (BIO 1134 and BIO 1144)
BIO 4514	Animal Physiology (10 hrs. bio & org chem) (SP)
PO 4844	Avian Anatomy and Physiology
VS 3014	Anatomy and Physiology
WFA 4173	Fish Physiology (BIO 1134 and BIO 1144)
WFA 4323	WF Nut. & Phys. (BIO 1134 & 1144) (SP Odd)

#### Organismal Elective

WFA 4423	Herpetology (BIO 1134, BIO 1144, & WFA 3133)
WFA 4433	Mammalogy (BIO 1134, BIO 1144, & WFA 3133)
WFA 4443	Ornithology (BIO 1134, BIO 1144, & WFA 3133)
WFA 4453	Ichthyology* (BIO 1134, BIO 1144, & WFA 3133)

\*Ichthyology applies in the zoology category, not in the BIO category vfor TWS certification

#### Policy Elective

FO 4343	Forest Admin. and Organization
FO 4353	Natural Resource Law (Jr.)
FO 4413	Natural Resources Policy (Sr.)
PS 4743	Environmental Policy (PS 1113 or PS 2703)
WFA 4353	Fish & Wildlife Policy & Law Enforce. (Sr.)
WFA 4363	Wildlife & Fisheries Admin. & Comm. (Jr.)
WFA 4463	Human Dim. of WF Mgt. (Jr.)

#### Social Science Electives

ADS 1013/PO 1013	Animal Agriculture and Society
AN 1103	Intro. to Anthropology
AN 1143	Intro. to Cultural Anthropology
AN 1543	Intro. to Archaeology
CO 1223	Intro. to Comm. Theory (CO 1003 or 2253)
CO 1403	Intro. to Mass Media
EN 2403/AN 2403	Intro. to the Study of Language
EC 1033	Economics of Social Issues
EPY 2513	Human Growth and Development
FO 4113	Forest Resource Economics (AEC 2713 or equiv.)
GR 1123	Intro. to World Geography
GR 2013	Cultural Geography
HON 1173	The West & the Wider World
HON 3143	Honors Seminar in SS (So., EN 1103, EN 1113)
HS 1813	Individual & Family Dev. through the Lifespan
PS 1113	American Government
PS 1313	Intro. to International Relations
PS 1513	Comparative Government
PSY 1013	General Psychology
SO 1003	Intro to Sociology
SO 1103	Contemporary Social Problems
SO 1203	Marriage and Family

#### Zoology Electives

ADS 4114	Animal Nutrition
BIO 3304	General Microbiology (CH 1053 or CH 1223)
BIO 3504	Comparative Anatomy (BIO 1134, BIO 1144)
BIO 3524	Biology of Vertebrates
BIO 4404	Environmental Microbiology (BIO 3304)
BIO 4413	Immunology (BIO 3304, CH 4513)
BIO 4514	Animal Physiology (10 hrs. bio & org chem)
EPP 4313	Forensic Entomology
PO 4844	Avian Anatomy and Physiology
	Additional organismal elective
	Additional invert. elective

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

### 2016-2017 Wildlife, Fisheries and Aquaculture Approved Elective List

#### All Concentrations

##### Professional Electives

AEC 4413	Public Problems in Agriculture (Sr, EC 3123, AEC 3113)
ADS 3314	Intro. to Meat Science (ADS 1113)
BCH 4013	Elem. Biochem. (CH 2503 & BIO 1134)
BIO 3303	Parasitology (BIO 1134)
BIO 3304	General Microbiology (CH 1053 or 1223)
BIO 4113	Evolution (BIO 1144, BIO 3103 or BIO 4133/MA 1313)
BIO 4143	Population Genetics (BIO 1134, BIO 1144)
BIO 4213	Plant Ecology (BIO 4203)
BIO 4233	Living with Global Change
BIO 4514	Animal Physiology (10 hrs. bio & org chem)
CO 4213	Political Communication (CO 1223)
CO 4323	Mass Media and Society (Jr.)
FO 3113	Forest Recreation Mgt.
FO 3203	Forest Fire
FO 4223/4221	Practice of Silviculture/Lab (FO 4123 or WFA 3133)
FO 4313	Spatial Tech. in Nat. Res. (FO 3015 or GR 2313)
FO 4353	Natural Resource Law (Jr.)
FO 4463	Forest Hydrology & Water Shed (PSS 3303, FO 3012, FO 4123)
FO 4472/4471	GIS Nat. Res. Mgt./Lab (Jr.)
FO 4483	Forest Soils (PSS 3303, FO 3012, FO 4123)
FNH 4164	Quality Assur. of Food Prod. (BIO 3304)
GG 3613	Water Resources (GG 1113)
GG 4613	Physical Hydrology (GG 3613)
GR 3113	Conservation of Natural Resources
GR 4303	Principles of GIS
GR 4313	Advanced GIS (GR 4303)
PHI 4143	Philosophy of Science
PSS 3133	Intro. to Weed Science (BIO 2113, CH 1053)
PSS 4633	Weed Biology/Ecology (BIO 2113, PSS 3133)

##### Professional Electives (continued)

SO 4173	Environment & Society (AN 1103 or SO 1003)
SO 4703	Population Prob. and Processes (SO 1003)
ST 4213	Nonparametric Methods (ST 2113 or ST 3123)
WFA 3000*	Internship (Jr./2.75 GPA)
WFA 4000*	Directed Individual Study
WFA 4133	Fisheries Science (ST 3123) (SP Even)
WFA 4173	Fish Physiology (BIO 1134, BIO 1144)
WFA 4183	P&P. of Aquacul. (BIO 1134 & 1144) (SP Even))
WFA 4233	Limnology/Lab (WFA 3133)
WFA 4253	App of GIS in WF
WFA 4263	Wildlife Diseases (BIO 1134 & BIO 1144) (SP Even)
WFA 4273	Ecology & Mgt of HWC (WFA 3133) (FL Odd)
WFA 4283	Hum-WF Conf. Techniques (WFA 3133) (FL Odd)
WFA 4313	Fisheries Management (WFA 3133)
WFA 4363	Wildlife & Fish Admin. and Comm. (Jr.)
WFA 4373	Prin./Prac. Cons. in Ag Landscapes (SP Odd)
WFA 4383	Wetlands Eco. & Mgt. (Jr., WFA 3133) (FL Even)
WFA 4394	Waterfowl Eco. & Mgt. (Jr., WFA 3133) (FL Odd)
WFA 4423	Herpetology (BIO 1134, BIO 1144, & WFA 3133)
WFA 4433	Mammalogy (BIO 1134, BIO 1144, & WFA 3133)
WFA 4443	Ornithology (BIO 1134, BIO 1144, & WFA 3133))
WFA 4453	Ichthyology (BIO 1134, BIO 1144, & WFA 3133)
WFA 4463	Human Dim. of Fish and Wildl. Mgt. (Jr.) SP Even)
WFA 4483	Seminar in Tropical Biology (WFA 3133) (SP Even)
WFA 4484	Upland Avian Eco. & Mgt. (Jr., WFA 3133, WFA 4153) (FL Even)
WFA 4494	Large Mammal Eco. & Mgt. (Jr., WFA 3133, WFA 4153) (FL Even)
WFA 4613	Landscape Ecology (WFA 3133, ST 3123)
WFA 4623	Conservation Biology

\*only 3 hours each apply towards graduation requirements

## SECTION IV: DEPARTMENT OF WILDLIFE, FISHERIES AND AQUACULTURE

Approved Substitutions List for Wildlife, Fisheries, and Aquaculture Majors							
Course	Approved Substitution	Concentrations					
		CLE	HWC	WLAC	WLFS	WLVM	PVSF
AIS 3203 Prof Writing Ag, NR & Human Sci	EN 3313 Writing for the Workplace	Yes	Yes	Yes	Yes	Yes	Yes
	MGT 3213 Organizational Comm.	Yes	Yes	Yes	Yes	Yes	Yes
CO 1003 Public Speaking (pre-ferred)	CO 1013 Intro to Communication	Yes	Yes	Yes	Yes	Yes	Yes
	CO 1403 Intro Mass Media						
MA 1613 Calc. Bus/Life Science	MA 1713 Calculus I	Yes	Yes	Yes	Yes	Yes	Yes
PH 1113 General Physics I	PH 2213 Physics I					Yes	Yes
PH 1123 General Physics II	PH 2223 Physics II					Yes	Yes
WFA 4263 Wildlife Diseases	CVM 6134 Aquatic Animal Health Management				Yes	Yes	Yes
WFA 4223 Wildlife Plant ID	BIO 4203 Tax. of Spermatophytes	Yes	Yes	Yes	Yes	Yes	Yes
	BIO 4214 Gen. Plant Physiology	Yes	Yes	Yes	Yes	Yes	Yes
	EPP 4113 Plant Pathology	Yes	Yes	Yes	Yes	Yes	Yes
	PSS 4633 Weed Biology and Ecology	Yes		Yes		Yes	Yes
	PSS 3133 Weed Science	Yes		Yes		Yes	Yes
WFA 4253 Appl of Spatial Tech in WF.	FO 4472 & 4471 GIS Nat Res. Mgt.	Yes		Yes			
	GR 4303 Principles of GIS	Yes		Yes			
	GR 4313 Advanced GIS	Yes		Yes			

## SECTION V: DESCRIPTION OF CFR COURSES

Course numbers consist of four digits. The first digit indicates the level of preparation required and the fourth digit indicates the number of semester hours. The two middle digits are for department use. A fourth digit of zero (0) means that credit awarded is in consultation with the instructor. Where the same course is offered on both the undergraduate and graduate levels, two numbers are used to designate the levels of credit; ex. FO 4113/6113.

### Department of Sustainable Bioproducts

**FP 4013/6013. Wood Anatomy.** (3) (Prerequisites: SBP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Anatomy of commercial timber species; elements of botanical microtechnique, fundamentals of microscopy, and fundamental properties: gross and minute structural characteristics of wood leading to identification. **Fall Semesters of Even Years Only.**

**FP 4123/6123. Lumber Manufacturing.** (3) (Prerequisite: consent of instructor). Two hours lecture. Three hours laboratory. Raw materials, production methods and product specifications for sawn wood products. Machinery and plant layout. Operation, control, and analysis of lumber manufacturing systems; markets. **Fall Semesters of Even Years Only.**

**FP 4223/6223. Furniture Production I.** (3) (Prerequisite: SBP 1103 or consent of instructor). Two hour lecture. Three hour laboratory. The theory of furniture production; materials for furniture; manufacturing machines and their functions; wood machining and sanding; finishing; industrial processes; marketing. **Fall Semesters of Odd Years Only.**

**FP 4233/6233. Furniture Production II.** (3) (Prerequisite: SBP 1103 or Consent of instructor). Two hour lecture. General principles of upholstered furniture design; frame construction and analysis; material selection; fasteners; joint construction; and testing standards. **Fall Semesters of Even Years Only.**

**FP 4353/6353. Forest Products Marketing.** (3) (Prerequisites: SBP 2012 and junior standing). Marketing and practices used by forest products and furniture producing companies as related to differentiated vs. non-differentiated products by consumers. **Spring Semesters of Odd Years Only.**

**FP 4413. Professional Practice.** (3) (Prerequisite: Senior standing). Three hour independent study. Seniors will be exposed to

all FP faculty members and required to prepare both written and oral reports on a variety of FP topics. **Fall Only.**

**SBP 1001 First Year Seminar: 1 hour.** One hour lecture. First-year seminars explore a diverse array of topics and provides students with an opportunity to learn about a specific discipline from skilled faculty members

**SBP 1103 Introduction to Sustainable Bioproducts: 3 hours.** Three hours lecture. A survey of biomass structure, anatomy, properties and chemistry, and the processes used to manufacture sustainable biomass-based products

**SBP 1203 Anatomy of Wood and other Natural Materials: 3 hours.** (Prerequisite: SBP 1103 or consent of instructor). Two hours lecture and three hours laboratory. Anatomy of commercial timber species and natural materials used to manufacture bioproducts; elements of botanical microtechnique, fundamentals of microscopy; gross and minute structural characteristics

**SBP 2012 Introduction to Bioproduct Industries: 2 hours.** One hour lecture and one hour Laboratory/Field Trip. This course will be taught as a site tour of bioproduct industries focusing on conversion and use of biomass resources in the Southeastern United States. (During the two weeks of intersession term, class will meet six hours per day.)

**SBP 2123 Materials and Processing in Sustainable Bioproducts: 3 hours.** (Prerequisite: SBP 2012 or consent of instructor). Three hours lecture. Introduction to processing of sustainable biomaterials including generation of by-products; also methods for product evaluation with American Society of Testing and Materials (ASTM) standards

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Sustainable Bioproducts

**SBP 2990 Special Topic in Sustainable Bioproducts: 1-9 hours.** (1-9). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SBP 3113 Biomaterial Phys Mech: 3 hours.** (Prerequisite: MA 1323 or equivalent). Two hours lecture and two hours laboratory. This course focuses on understanding important physical and mechanical properties of biomaterials and the relationship of these properties to manufacturing processes and product uses

**SBP 3123 Biomass to Bioproducts: 3 hours.** (Prerequisite: CH 1043 or equivalent). Three hours lecture. Introduction to chemical/physical properties of forestry and agro crops with overview of products derived from plant materials. Innovative and emerging bioproducts industries are described

**SBP 3143 Biomass Characteristics and Production: 3 hours.** (Prerequisite CH 1043, BIO 1134, and MA 1313). Three hours lecture. Methods of field production and characteristics of biomass utilized for fuels and biochemicals

**SBP 4000 Directed Individual Study: 6 hours.** (1-6). Hours and credits to be arranged

**SBP 4023 Lignocellulosic Biomass Chemistry: 3 hours.** Three hour lecture. (Prerequisites: CH 1043 and CH 1053 or equivalent.) Chemical composition of lignocellulosic biomass (wood, agricultural residues, and bioenergy crops) including cellulose, hemicelluloses, lignin, and extractives, their structures, isolation, processes and applications

**SBP 4113 Adhesives and Biocomposites: 3 hours.** Two hours lecture. Three hours laboratory. (Prerequisites: SBP 2123, SBP 3113, SBP 3123, and CH 1053.) Theories and practices of adhesives and finishing materials used in the manufacture of biocomposite products and furniture

**SBP 4133 Biorefinery Processes: 3 hours.** (Prerequisites: SBP 4023 or consent of instructor). Three hours lecture. An overview of the different chemical and thermochemical biorefinery processes used to convert biomass into chemicals and fuels

**SBP 4144 Biocomposite Application and Manufacturing: 4 hours.** Three hours lecture. Three hours laboratory. (Prerequisite: SBP 2123, SBP 3113, SBP 3123, and SBP 4113/6113 or Consent of Instructor). This course evaluates the application of raw bio-materials (wood, non-wood biomaterial and resins) that are used to manufacture reconstituted and laminated bio-composite products and to classify these products by type, properties, and applications

**SBP 4153 Biological Conversion of Biomass: 3 hours.** (Prerequisite: BIO 1134 and BIO 1144 or consent of instructor). Three hours lecture. Introduction to concepts of conversion of biomass by organisms or isolated enzymes to chemicals focusing on breakdown of cellulose, lignin and hemicelluloses and enzyme kinetics

**SBP 4213 Deterioration and Preservation of Biomaterials: 3 hours.** Two hours lecture. Three hours laboratory. (Prerequisite: SBP 1103 or Consent of Instructor). Thermal, biological, and mechanical agents of bioproducts deterioration; biological control; design considerations; preservatives, preservation systems; treatability; preservative effectiveness; standards, pollution control

**SBP 4243 Sustainable Bioproducts: 3 hours.** (Prerequisite: SBP 3123 or consent of instructor). Three hours lecture. Expanding students' knowledge of bioproducts, manufacturing principles and processes according to various industrial fields and insights into new approaches and methods in bioproducts industries

**SBP 4253 Quantitative Methods in Sustainable Bioproducts: 3 hours.** Three hours lectures. (Prerequisite: MA 1313 and MA 1323 or equivalent and SBP 2123). The study and practical application of quantitative techniques commonly used in industry to evaluate the net worth of raw materials, and the cause and effect on process variables

**SBP 4263 Strength Design of Furniture as Green Products: 3 hours.** (Prerequisite: SBP 3113 or consent of instructor). Two hours lecture. Three hours laboratory. General principles of structural analysis of furniture; strength design of members and joints; mechanical properties of environmentally preferable materials; design and analysis computer software; green and sustainable design of certifications; and testing standards

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Sustainable Bioproducts

**SBP 4313 Bioproducts and the Environment: 3 hours.** (Prerequisites: SBP 2012, 2123, and 3123 or consent of instructor). Three hours lecture. An introduction to environmental topics and laws, environmental impact, and control technologies associated with emissions from diverse sustainable bioproducts industries, including global and national issues

**SBP 4333 Bioproducts and Environmental Biotechnology: 3 hours.** (Prerequisites: SBP 4313/6313 or consent of instructor). Three hours lecture. Introduction to biotechnological applications which remediate, minimize or eliminate environmental emissions from bioproduct industries, including wood preservatives, high organic process water, adhesives, resins and solvents

**SBP 4443 Capstone Sustainable Bioproducts: 3 hours.** (Prerequisite: consent of instructor). Integration of knowledge from courses and current issues involving team projects that explore manufacturing problems or product design, emphasizing LCA, social / global perspectives, and problem solving

**SBP 4450 Undergraduate Research in Sustainable Bioproducts: 1-6 hours.** (Prerequisite: Senior Standing and consent of instructor). 1-6 Variable hour laboratory. This course is introduced to introduce senior level students to the concepts of independent and original research. (Course limited to two offerings)

**SBP 4990 Special Topic in Sustainable Bioproducts: 1-9 hours.** (1-9). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### Department of Forestry

**FO 1101. Forest Resources Survey.** (1) One hour lecture. Survey of the professional resource manager's role and career opportunities in providing forest-based goods and services. Not open to Forest Resources majors with senior standing. **Fall Only.**

**FO 2113. Dendrology.** (3) (Prerequisites: BIO 1144 or BIO 2113 or equivalent). Two hours lecture. Four hours laboratory. Introduction to the identification and systematic classification of trees and other woody plants. Field exercises to promote the recognition and identification of trees and other woody plants. **Fall Only.**

**FO 2213. Forest Measurements.** (3) (Prerequisite: ST 2113 or equivalent). Three hour lecture. Principles of measurement for standing and felled trees. Inventory and sampling theory for forested lands. **Spring Only.**

**FO 2990. Special Topics in Forestry.** (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years). **All Terms.**

**FO 3003. Internship in Forestry.** (3) (Prerequisite: Junior standing or consent of instructor). Professional work experience with firms or companies, non-governmental organizations, government agencies and other relevant entities. **All Terms.**

**FO 3012. Introduction to Forest Communities.** (2) (Prerequisites: PSS 3303, FO 2113). Field exercises to gain practical knowledge of soil-geology-ecology interrelationships through trips to various physiographic regions. **Summer Only.**



## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Forestry

**FO 3015. Forest Description and Analysis.** (5) (Prerequisite: FO 2213, ST 2113). Field and laboratory exercises to gain practical experience with forest and land measurement techniques and equipment. Mapping, inventory, and analysis of forested tracts. Summer Only.

**FO 3103. Computer Applications for Forest Resources.** (3) (Prerequisite: Three hours of courses in the College of Forest Resources or consent of instructor.) Two hour lecture and two hour laboratory. Application of microcomputer concepts in forest resources with emphasis in Forestry and general and professional software packages in professional settings. Practice and demonstration of general and professional software packages used in upper level courses and professional settings in Forest Resources. Spring Only.

**FO 3113. Forest Recreation Management.** (3) Three hour lecture. Studies of the management of forest resources for outdoor recreation. Fall Only.

**FO 3203. Forest Fire.** (3) Two hour lecture. Three hour laboratory. Basic aspects of fire history, fire behavior, fire weather, fire effects, and management of fire. Emphasis on the use of prescribed burning in forest management. Spring Only.

**FO 3213. Tree Physiology** (3). (Prerequisites: BIO 1134 and BIO 1144 or equivalents). Three hours lecture. Physiological principles (photosynthesis, water relations and nutrient uptake) in the context of the unique physical attributes of trees including their large multi-dimensional crowns, long distance transport systems, woody stems and longevity.

**FO 4000. Directed Individual Study.** Hours and credits to be arranged. All terms.

**FO 4113/6113. Forest Resource Economics.** (3) (Prerequisites: AEC 2713 or equivalent). Three hour lecture. Basic principles of forest resource valuation; economics applied to production, conversion, marketing and consumption of forest products and benefits. Spring Only.

**FO 4123/6123. Forest Ecology.** (3) (Prerequisite: FO 3012). Three hour lecture. Four hours laboratory. Natural principles governing establishment, development, and functioning of forest ecosystems. Includes ecology, genetics, physiology, tree growth, reproduction, site classification, stand dynamics, hydrology, nutrition, and succession. Fall Only.

**FO 4213/6213. Forest Biometrics.** (3) (Prerequisite: ST 2113 or equivalent or consent of instructor). Three hour lecture. Applications of mensurational and statistical principles and techniques in determination of forest growth and yield. Advanced topics of forest resource inventory. Spring Only.

**FO 4221/6221. Practice of Silviculture Laboratory.** (1) (Prerequisite: FO 4123/6123, or WFA 4123; Co-requisite: FO 4223/6223). Four hour laboratory. Application of silviculture practices and operations under given forest land management objectives. Spring Only.

**FO 4223/6223. Practice of Silviculture.** (3) (Prerequisite: FO 4123/6123 or WFA 3133 and WFA 4123; Co-requisite: FO 4221/6221). Three hour lecture. Manipulation to obtain desired reproduction and to attain optimum development under given forest land management objectives. Spring Only.

**FO 4231/6231. Introduction to Wood Supply Systems.** (1) (Co-requisite: FO 3015). Investigative field and laboratory exercises used to gain practical knowledge into the structure and performance of wood supply systems. Summer Only.

**FO 4233/6233. Forest Operations and Harvesting.** (3) (Prerequisite: FO 3015, FO 4231/6231, or consent of instructor). Three hour lecture. Study of practical, managerial, and logistic considerations associated with harvesting and other forest operations, as well as their social, environmental and legal influences. Fall Only.

**FO 4253/6253. Timber Procurement.** (3) (Prerequisites: FO 4231/6231, FO 4233/6233). Lectures and field exercises dealing with the problems of timber procurement to include planning for harvest, methods of handling and transport, legal and safety considerations. Fall Only.

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Forestry

**FO 4313/6313. Spatial Technologies in Natural Resources Management.** (3) (Prerequisite: FO 3015 or GR 2313 or consent of instructor). Three hours lecture. Three hour laboratory. Fundamentals of scale, area, height, and stand volume determinations from aerial imagery; planimetric and topographic mapping; image interpretation; GPS and GIS; application to natural resources. Fall Only.

**FO 4323/6323. Forest Resource Management.** (3) (Prerequisites: FO 4113/6113, FO 4213/6213, FO 4223/6223, FO 4233/6233, FO 4231/6231). Three hour lecture. Three hours laboratory. Application of quantitative decision making techniques to stand-level and forest-wide management problems. Topics include land classification, forest production, optimal rotation analysis, and harvest scheduling. Fall Only.

**FO 4343/6343. Forest Administration and Organization.** (3) Three hours lecture. Hierarchy and land structuring of forest organizations. Legal aspects of administering forest and holdings.

**FO 4353/6353. Natural Resource Law.** (3) (Prerequisite: Junior standing or consent of instructor). Three hours lecture. A comprehensive study of the laws relating to natural resources and forestry with emphasis on tort Law, real property law, environmental law, taxation law and contract law. Spring Only.

**FO 4411-4441/6411-6441. Remote Sensing Seminar.** (1) (Prerequisite: Junior standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411-4441, ECE 4411-4441, and GR 4411-4441.) Fall Only.

**FO 4413/6413. Natural Resources Policy.** (3) (Prerequisite: Senior standing). Three hours lecture. Current topics relating to natural resources policy which affect management decisions and practices in the public and private sectors of natural resources use. Spring Only.

**FO 4423/6423. Professional Practice.** (3) (Prerequisite: FO 4323/6323). Three hours lecture. Four hours laboratory. Forest resource data collection and analysis. Development of forest resource alternatives and recommendations for a specific forest property. Spring Only.

**FO 4443/6443. International Forest Resources and Trade.** (3) (Prerequisite: Consent of instructor). Three hours lecture. A study of the world's wood consumption, marketing arrangements, community forestry, and forestry in economic development. Fall Semesters of Odd Years Only.

**FO 4453/6453. Remote Sensing Applications.** (3) Prerequisites: A basic image interpretation or remote sensing course or consent of instructor). Two hour lecture. Three hour laboratory. An introduction to remote sensing with emphasis on analysis and applications of digital image data in inventory, monitoring, and management of renewable natural resources. Laboratory emphasis is on computer applications and digital techniques of image analysis. Spring Only.

**FO 4463/6463. Forest Hydrology and Watershed Management.** (3) (Prerequisite: PSS 3303, FO 3012, FO 4123/6123, or consent of instructor). Three hour lecture. Synthesis of current information on the fundamental properties and processes of forest soils, hydrology, and water quality with emphasis on watershed and ecosystem management factors. Spring Only.

**FO 4471/6471. GIS for Natural Resource Management Laboratory.** (1) (Co-requisite: FO 4472/6472. Prerequisite: Junior standing). Three hour laboratory. Computer laboratory exercises that stress development, management and use of digital geographic data for management of natural resources. Spring Only.

**FO 4472/6472. GIS for Natural Resources Management.** (2) (Co-requisite: FO 4471/6471. Prerequisite: Junior standing). Two hour lecture. Introduction to geographic information systems (GIS) with emphasis on collection, encoding, storage, retrieval, and analysis of spatial data for use in management of natural resources. Spring Only.

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Forestry

**FO 4483/6483. Forest Soils.** (3) (Prerequisite: PSS 3303, FO 3012, FO 4123/6123, or consent of instructor). Three hour lecture. Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems. Spring Semesters of Odd Years Only.

**FO 4990/6990. Special Topics in Forestry.** (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years). All Terms

**NREC 3213. Environmental Measurements.** Two hours lecture. Two hours Laboratory. Principles of inventory, sampling and analysis for measurements in environmental assessments. Field exercises provide practice in sampling methods, data collection, instrumentation, and analysis. Spring Only.

**NREC 4423. Environmental Assessment.** (Prerequisite:NREC senior level standing or consent of instructor). Two hours lecture. Two hours laboratory. Principles of assessing environmental impacts resulting from planned management activities affecting natural resources. Preparation of Environmental Impact Statements (EIS). Spring Only.

### Department of Wildlife, Fisheries and Aquaculture

**WFA 1001. First Year Seminar.** (1 hour) (Prerequisite: First year student). One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members.

**WFA 1102. Wildlife and Fisheries Profession.** (2) (Prerequisite: Freshman or Sophomore standing or consent of instructor). Two hour lecture. Orientation to the interdisciplinary and applied nature of wildlife and fisheries management and related fields, emphasizing the department, college, and university; student roles and responsibilities; and career opportunities. Fall Only.

**WFA 2990. Special Topics in Wildlife and Fisheries.** (1-9) Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years). All Terms.

**WFA 3000. Internship in Wildlife, Fisheries or Aquaculture.** (1-4) (Prerequisite: Junior Standing and 2.75 GPA or better). Professional work experience with governmental or private agencies. (Hours and credits to be arranged). All Terms.

**WFA 3013. Human-Wildlife Conflicts Internship.** (3) (Prerequisite: Consent of Instructor). Internship. Professional experience in human-wildlife conflict management or research. All Terms.

**WFA 3031. Introductory Wildlife/Fisheries Practices.** (1) (Prerequisite: Junior standing). Field exercises and practical exposure to research and management of wildlife and fish species and habitats in Mississippi. Summer Only.

**WFA 3133. Applied Aquatic and Terrestrial Ecology.** (3) (Prerequisite: BIO 1134 and BIO 1144 or consent of instructor). Two hour lecture. Four hour laboratory, alternate weeks. The application of ecological principles which serve as a basis for the management of wildlife and fisheries in terrestrial and aquatic habitats. Fall Only.

**WFA 4000. Directed Individual Study.** Hours and credits to be arranged. All Terms.

**WFA 4123. Wildlife and Fisheries Biometrics.** (3) (Prerequisite: ST 3123 and a grade of C or better in MA 1613, or consent of instructor). Two hour lecture. Four hour laboratory. Application of basic statistical analytical tools to address wildlife and fisheries management/research questions. Fall Only.

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Wildlife, Fisheries and Aquaculture

**WFA 4133/6133. Fisheries Science.** (3) (Prerequisite: ST 3123 or equivalent). Two hour lecture. Four hour laboratory, alternate weeks. Study of the biological parameters of fish populations. Spring Semesters of Even Years Only.

**WFA 4153. Principles of Wildlife Conservation and Management.** (3) (Prerequisite: Sophomore standing, WFA 3133 or FO 4123 or equivalent) Two hour lecture. Four hour laboratory on alternate weeks. Principles of game management; habitat improvement; wildlife techniques; public relations. Fall Only.

**WFA 4173/6173. Fish Physiology.** (3) Pre-requisite: BIO 1134 and BIO 1144 or consent of instructor) Two hour lecture. Four hour laboratory, alternate weeks. Basic anatomy and physiology of major systems in fish: integration of the physiological systems as they function during development, growth and maturation. Fall Semesters of Even Years Only.

**WFA 4183/6183. Principles and Practices of Aquaculture.** (3) Pre-requisite: BIO 1134 and BIO 1144 or consent of instructor) Two hour lecture. Four hours laboratory alternate weeks. Principles and practices of aquaculture applied to the farming of marine and freshwater species of fish, crustaceans, and mollusks throughout the world. Spring Semesters of Even Years Only.

**WFA 4223/6223. Wildlife Plant Identification.** (3) (Prerequisite: BIO 1134 and BIO 1144 and WFA 3133 or equivalent). Two hours lecture. Four hour laboratory weekly. Identification, taxonomy, ecology, and management of wildlife food and cover plants. Fall Semesters of Odd Years Only.

**WFA 4233/6233. Limnology.** (3) (Prerequisite: WFA 3133 or consent of instructor). Two hour lecture. Four hour laboratory. The physical, chemical and biological processes underlying the function and productivity of freshwater ecosystems. Fall Only.

**WFA 4243. Wildlife Techniques.** (3) (Prerequisite: Junior or Senior standing or Consent of instructor). Two hour lecture. Four hour laboratory. Contemporary research and management techniques and tools for wildlife populations and habitats. Spring Only.

**WFA 4253/6253. Application of GIS in Wildlife and Fisheries.** (3) (Prerequisite: Senior standing or consent of instructor). Two hour lecture. Four hour laboratory weekly. Practical application of global positioning systems and geographic information systems to wildlife and fisheries management. (Limited to WFA majors) Spring Only.

**WFA 4263/6263. Wildlife Diseases.** (3) (Pre-requisite: BIO 1134 and BIO 1144 or consent of instructor). Two hour lecture. Four hour laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as CVM 4263/6263). Spring Semesters of Even Years Only.

**WFA 4273. Ecology and Management of Human-Wildlife Conflicts.** (3) (Prerequisite: WFA 3133 or consent of instructor). Ecological principles and management approaches to resolve human-wildlife conflicts. Fall Semesters of Odd Years Only

**WFA 4283. Human-Wildlife Conflict Techniques.** (3) (Prerequisite: WFA 3133 or consent of instructor). Discussion, demonstration, and application of techniques used to resolve human-wildlife conflicts. Fall Semesters of Odd Years Only.

**WFA 4313/6313. Fisheries Management.** (3) (Prerequisite: WFA 3133 or consent of instructor). Two hour lecture. Laboratories alternate weeks. Principles of fisheries management and methods for assessment and analysis of fish populations and aquatic habitats. Fall Only.

**WFA 4323/6323. Wildlife Nutrition and Physiology.** (3) Pre-requisite: BIO 1134 and BIO 1144, or consent of instructor). Two hour lecture. Four hour laboratory, alternate weeks. Nutrition and physiology of aquatic and terrestrial wildlife, with emphasis on understanding life history strategies and functional adaptations to habitat and environmental variation. Spring Semesters of Odd Years.

**WFA 4353/6353. Fish and Wildlife Policy and Law Enforcement.** (3) (Prerequisite: Senior standing or consent of instructor). Three hour lecture. A survey of the major content areas of fish and wildlife policy and law enforcement. Emphasis is on the fundamentals of conservation policies and laws. Fall Only.

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Wildlife, Fisheries and Aquaculture

**WFA 4363/6363. Wildlife and Fisheries Administration and Communication.** (3) (Prerequisite: Junior standing or consent of instructor.). Two hour lecture. Three and one half hour lab, alternate weeks. Administrative and communicational techniques and skills in the workplace and political environments of wildlife and fisheries organizations. Spring Only.

**WFA 4373/6373. Principles and Practices of Conservation in Agricultural Landscapes.** (3) Two hour lecture. Four hour laboratory, alternate weeks. Introduces theoretical background for ecological conservation in agricultural landscapes with focus on the role of USDA Farm Bill programs in achieving conservation goals. Spring Semesters of Odd Years Only.

**WFA 4383/6383. Wetlands Ecology and Management.** (3) (Pre-requisite: WFA 3133 and Junior standing). Two hour lecture. Four hour laboratory, alternate weeks. Hydrology, soils and biogeochemistry of wetlands; structure and function of important wetland types; wetland management for wildlife and fisheries; wetland creation and restoration. Fall Semesters of Even Years Only.

**WFA 4394/6394. Waterfowl Ecology and Management.** (4) (Prerequisite: WFA 3133 and Junior standing or consent of instructor). Three hour lecture. Four hour laboratory. Annual ecology of North American waterfowl, habitat and population ecology, and management, waterfowl identification, field trips, management plan, and current issues. Fall Semesters of Odd Years Only.

**WFA 4423. Herpetology.** (3) (Prerequisite: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hour lecture. Four hour laboratory, alternate weeks. Evolution, systematics, biology and ecology of reptiles and amphibians. Spring Semesters.

**WFA 4433. Mammalogy.** (3) (Prerequisite: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hour lecture. Three hour laboratory every week Evolution, systematics, and ecology of mammals, with emphasis on North American groups. Fall Semesters.

**WFA 4443. Ornithology.** (3) (Prerequisite: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hour lecture. Three hour laboratory every week. Recent and fossil avifauna of the world; its origin, distribution, classification, and biology. Spring Semesters.

**WFA 4453. Ichthyology.** (3) (Prerequisite: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hour lecture. Three hour laboratory. Structure, evolution, classification and life histories of fishes of the world with emphasis on North American freshwater forms. Spring Semesters.

**WFA 4463. Human Dimensions of Fish and Wildlife Management.** (3) (Prerequisite: Junior standing or consent of instructor). Three hour lecture. Survey of the major content areas of human dimensions. Emphasis on the considerations and implications associated with measuring, evaluating, and influencing people's attitudes and behaviors. Fall Semesters.

**WFA 4473. Wildlife and Fisheries Practices.** (3) (Prerequisite: WFA 3133 and WFA 4153 and Senior standing, or consent of instructor). Two hour lecture. Four hour laboratory. The integration of principles of ecology, wildlife and fisheries techniques and policies for effective planning and implementation of natural resource management. Spring Only.

**WFA 4483/6483. Seminar in Tropical Biology.** (3) (Prerequisite: WFA 3133). One hour lecture. Four hour laboratory. An introduction to the composition and function of tropical ecosystems of the New World. Listed on the Study Abroad/Exchange Campus. Spring Semesters of Even Years Only.

**WFA 4484/6484. Upland Avian Ecology and Management.** (3) (Prerequisites: WFA 3133 and WFA 4153 and Junior standing or consent of instructor). Three hour lecture. Four hour laboratory. The application of ecological principles to management of wildlife populations, focusing on avian species and communities inhabiting upland ecosystems. Spring Semesters of Odd Years Only.

## SECTION V: DESCRIPTION OF CFR COURSES

### Department of Wildlife, Fisheries and Aquaculture

**WFA 4494/6494. Large Mammal Ecology and Management.** (3)  
(Prerequisites: WFA 3133 and WFA 4153 and Junior standing).  
Three hour lecture. Four hour laboratory, alternate weeks. Ecological principles and applied methods used in the management of large mammals. **Fall Semesters of Even Years Only.**

**WFA 4512/6512. Advanced Topics in Human-Wildlife Conflicts I.** (2) (Prerequisite: WFA 4273, WFA 4283, or consent of instructor). Discussion, synthesis and presentation of current issues in Human-Wildlife Conflicts. Development of manuscripts and research proposal. **Fall Semesters of Even Years Only.**

**WFA 4521/6521. Advanced Topics in Human-Wildlife Conflicts II.** (1) (Prerequisite: WFA 4512). Conduct of data collection, analyses, interpretation, and writing of scientific manuscripts in instructor-approved area of human-wildlife conflicts. **Spring Semesters of Odd Years Only**

**WFA 4613. Landscape Ecology.** Prerequisite (WFA 3133 and ST 3123 (or equivalents or consent of instructor). Two hours lecture, two hours lab. Foundational concepts and research methods of landscape ecology and application to ecology and management of natural resources.

**WFA 4623. Conservation Biology.** Three hours lecture. Theory and applications of conservation biology, measures of biodiversity, ecological geography, measures and treatments of decline.

**WFA 4990/6990. Special Topics in Wildlife and Fisheries.** (1-9)  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years). **All Terms.**

## SECTION VI: CFR ADVISOR LIST

Forestry				
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Frey, Brent	662.325.2775	345 Thompson Hall	Forest Management	Wildlife Management
Grace, Laura	662.325.8919	309 Thompson Hall	Forest Products	Wildlife Management
Grado, Stephen (UG Coordinator)	662.325.2792	357 Thompson Hall	Urban Forestry	Environmental Conservation
Grala, Robert	662.325.7039	343 Thompson Hall	Wildlife Management	
Grebner, Don	662.325.0928	329 Thompson Hall	Forest Management	Wildlife Management
Matney, Tom	662.325.2791	319 Thompson Hall	Forest Management	Wildlife Management
Munn, Ian	662.325.4546	349 Thompson Hall	Forest Management	
Renninger, Heidi	662-325-0792	313 Thompson Hall	Resource Conservation Science	Wildlife Management
Roberts, Scott	662.325.3044	351 Thompson Hall	Environmental Conservation	
Sabatia, Robert	662.325.0596	321 Thompson Hall	Forest Management	Natural Resource Technology
Schultz, Emily	662.325.2697	315 Thompson Hall	Wildlife Management	
Siegert, Courtney	662.325.7481	347 Thompson Hall	Resource Conservation Science	Environmental Conservation
Sun, Changyou	662.325.7271	363 Thompson Hall	Nat. Resource Law & Administration	Forest Management
Willis, John	662-325-0523	361 Thompson Hall		

Sustainable Bioproducts		
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Dr. Michael Barnes	662.325.3056	Building 5, Rm 102
Dr. Rubin Shmulsky (Dept. Head)	662.325.2243	Franklin Center 203

## SECTION VI: CFR ADVISOR LIST

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Burger, Leslie (UG Coordinator)	662.325.6686	259 Thompson Hall	Pre-Veterinary
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Rush, Scott	662.325.0762	231 Thompson Hall	Wildlife Agriculture Conservation
Tegt, Jessica	662.325.0590	210 Thompson Hall	Human Wildlife Conflicts
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