FOR 240.002 – WOOD SCIENCE
Spring, 2016
COURSE SYLLABUS

Professor: Matthew McBroom, Ph.D, C.F.
Office: 104 Forest Laboratory Building (FORL), 468-2469
Email: mcbroommatth@sfasu.edu
Web Site: www.faculty.sfasu.edu/mcbroommatth
Office Hours: Office Hours: MWF 9:30-11:30; T TH 9:00-11:00; Others by Appointment
Class Schedule: M,F 8:00-8:50 – Lecture, Wood Science
M,W,TH 1:00-3:50 – Lab, Wood Science
T,TH 8:00-8:50 – Lecture, Forest Hydrology
T 12:30-3:15 – Lab, Forest Hydrology
Room: Lecture, FORL 103, Lab FORL103

COURSE DESCRIPTION

FOR 240 – Wood Science. 2 semester hours, 1 hours lecture and 3 hours lab per week. This course will examine the physical and chemical properties of wood as related to its anatomy and economic uses. Prerequisite: MTH 138 or 143, Bio 131, Che 133.

Required Textbooks:

Supplemental References:

Required Material:
10x hand lens for laboratory sessions

Useful Material:
SHARP knife or razor blade holder for surfacing wood blocks.
Program Learning Outcomes (This is not a General Education Course): Forestry 240 is one of the forestry core courses required of all forestry majors and thus competency is required. A minimum grade of a “C” must be attained or the course will have to be repeated. The course is designed to address the following Program Learning Outcomes, as given in the BSF Program Matrix:

1. Demonstrate understanding and competency of forest ecology and biology;
2. Demonstrate understanding and competency in the measurement of forest resources;
3. Demonstrate understanding and competency in managing forest resources;
4. Demonstrate understanding and competency of forest resource policy, economics, and administration.
5. Demonstrate understanding and competency in oral and written communication skills.

The above PLOs are also recognized as vital components by the Society of American Foresters, the program’s accrediting agency.

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<tbody>
<tr>
<td>FOR 409</td>
<td>I</td>
<td>I</td>
<td>B</td>
<td>I</td>
<td>B</td>
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</table>

B – Basic – FOR 240 supports Program Learning Outcome by providing students with fundamental information, definitions, concepts, and lab activities relative to the expected outcomes.
I – Intermediate – FOR 240 supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.

Student Learning Outcomes: Upon successful completion of this course, the student will:

Understand macroscopic and microscopic character and structure of wood, as well as differences between hardwood and softwood structure (PLO #1 and 3);

Understand and be able to quantify wood measurements like density, strength, and mechanical properties. (PLO #2 and 4);

Understand how wood is utilized, how forest products are manufactured, marketed, and valuated. (PLO #3 and 4)

Have demonstrated competency in oral and written communication skills (PLO #5).

Useful Web Resources:
Great Hardwood ID Site: [http://legacy.ncsu.edu/WPS202/aaJosh/Homepage.htm](http://legacy.ncsu.edu/WPS202/aaJosh/Homepage.htm)
Good Wood ID Site: [http://www.cefts.org/woodwebpage.pdf](http://www.cefts.org/woodwebpage.pdf)
Periodic Table: [http://www.webelements.com/](http://www.webelements.com/)

Teaching Philosophy: Learning is a two-way street, requiring interaction between teacher and student. We tend to learn in three distinct phases:

1. Accumulation of information or knowledge.
2. Assimilation of that knowledge into what we already know.
3. Application of new knowledge to various circumstances.

Learning occurs instinctively by observing, imitating, then understanding. Assimilation and application are integral to accumulating knowledge that can be used throughout one’s life. Each phase of learning will be incorporated into the topics covered in this course.
**Tentative Forestry 240 Lecture Schedule, Spring, 2016.**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Shmulsky and Jones Chapter</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/29</td>
<td>Introduction, Tree Growth</td>
<td>Intro, Ch 1</td>
</tr>
<tr>
<td>2</td>
<td>2/5</td>
<td>Composition and Structure of Wood</td>
<td>Ch 3</td>
</tr>
<tr>
<td>3</td>
<td>2/12</td>
<td>Juvenile Wood, Reaction Wood, Branches &amp; Roots</td>
<td>Ch 6</td>
</tr>
<tr>
<td>4</td>
<td>2/19</td>
<td>Wood and Water/ Density and Specific Gravity</td>
<td>Ch 7, 8</td>
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<tr>
<td>5</td>
<td>2/26</td>
<td>Wood Durability &amp; Protection</td>
<td>Ch 9</td>
</tr>
<tr>
<td>6</td>
<td>3/4</td>
<td><strong>Exam 1 3/2/2016 8:00 a.m.</strong></td>
<td>Ch 1-3, 6-8</td>
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<tr>
<td>7</td>
<td>3/11</td>
<td>Silviculture and Wood Quality</td>
<td>Ch 11</td>
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<tr>
<td>8</td>
<td>3/18</td>
<td>Spring Break – Self Directed Study</td>
<td></td>
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<tr>
<td>9</td>
<td>3/25</td>
<td><strong>Easter Break</strong></td>
<td></td>
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<tr>
<td>10</td>
<td>4/1</td>
<td>Lumber</td>
<td>Ch 12</td>
</tr>
<tr>
<td>11</td>
<td>4/8</td>
<td>Structural Composites</td>
<td>Ch 13</td>
</tr>
<tr>
<td>12</td>
<td>4/15</td>
<td>Nonstructural Composites</td>
<td>Ch 14</td>
</tr>
<tr>
<td>13</td>
<td>4/22</td>
<td><strong>Exam 2 4/20/2016 8:00 a.m.</strong></td>
<td>Ch 1-15</td>
</tr>
<tr>
<td>14</td>
<td>5/29</td>
<td>Pulp and Paper</td>
<td>Ch 15</td>
</tr>
<tr>
<td>15</td>
<td>5/6</td>
<td>Energy and Chemical Products</td>
<td>Ch 16</td>
</tr>
<tr>
<td>16</td>
<td>5/13</td>
<td><strong>Comprehensive Final Exam 5/13/2016 1:00 p.m.</strong></td>
<td>Ch 1-16</td>
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</tbody>
</table>

Lecture schedule is tentative and subject to revision. Assignments may be due during Dead Week.

**Tentative Forestry 240 Laboratory Schedule, Spring 2016.**

<table>
<thead>
<tr>
<th>Week</th>
<th>Week</th>
<th>Laboratory</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/25</td>
<td>Introduction, Tree Growth, Wood as a Building Material</td>
</tr>
<tr>
<td>2</td>
<td>2/1</td>
<td>Macroscopic Wood Features, Softwood Identification</td>
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<tr>
<td>3</td>
<td>2/8</td>
<td>Softwood identification – <strong>Wood Products Pamphlet and Presentations</strong></td>
</tr>
<tr>
<td>4</td>
<td>2/15</td>
<td>Composition and Structure; softwood ID <strong>Wood Products Presentations</strong></td>
</tr>
<tr>
<td>5</td>
<td>2/22</td>
<td>Wood Composition and Structure; <strong>Softwood ID Test</strong></td>
</tr>
<tr>
<td>6</td>
<td>2/29</td>
<td>Wood Strength and Mechanics</td>
</tr>
<tr>
<td>7</td>
<td>3/7</td>
<td>Softwood Structure and Microscopic features of softwoods identification <strong>Wood Structure Report Due</strong></td>
</tr>
<tr>
<td>8</td>
<td>3/14</td>
<td>Spring Break – Self Directed Study</td>
</tr>
<tr>
<td>9</td>
<td>3/21</td>
<td>Macroscopic features of hardwoods and hardwood identification</td>
</tr>
<tr>
<td>11</td>
<td>4/4</td>
<td>Hardwood identification <strong>Genetic Engineering Group Position Paper and Presentation</strong></td>
</tr>
<tr>
<td>12</td>
<td>4/11</td>
<td>Hardwood identification <strong>Wood Species Report Due</strong></td>
</tr>
<tr>
<td>13</td>
<td>4/18</td>
<td>Hardwood Structure and Hardwood ID</td>
</tr>
<tr>
<td>14</td>
<td>4/25</td>
<td><strong>Hardwood and Softwood Identification Test</strong></td>
</tr>
<tr>
<td>15</td>
<td>5/2</td>
<td>Dead Week Lab – Wood and Energy</td>
</tr>
</tbody>
</table>

Schedule tentative and subject to revision. Labs will meet during Dead Week. Lab final may be given during Dead Week.
COURSE EVALUATION

Grading Philosophy: I expect natural resource professionals to be committed, self-motivated and enthusiastic about their chosen profession and the proper and ethical practice thereof. The grading system for this course is designed to provide each student with the opportunity to demonstrate mastery of the subject matter.

Course Grades: Final course grades will be assigned as follows:

1. Forest Product Brochure and Presentation – 50 pts
2. Genetic Engineering Collaborative Position Paper and Presentation - 50 pts
3. Wood Species Reports – 50 pts,
5. Wood ID Tests – 50 pts ea, 100 pts
7. Comprehensive Final Exam – 200 pts

There will not be separate grades given for lecture and lab.

Student participation and input in class is encouraged and welcomed. Please feel free to contribute.

The responsibility of the ethical practice of forestry and wood science and processing will also be discussed. The ability to communicate through both written and oral methods the knowledge of wood science and wood properties will be required.

Attendance: Course attendance is required. The student will be expected to accumulate a great deal of information during this course. New material builds on material from previous lectures so that absences will result in a student falling behind. Excused absences include participation in University-sponsored events, health problems, or family emergencies. Documentation for University excused absences must be provided. Notification of planned excused absences must be provided.

Each unexcused absence from a laboratory section will result in a 5% reduction in the final course grade. Each unexcused absence from lecture following the first one will result in a 2.5% reduction in the final course grade.

Documentation for excused absences must be provided. Notification of planned excused absences should be provided. Make-up work will be accepted for a maximum of 2 weeks following an excused absence. [http://www.sfasu.edu/upp/pap/academic_affairs](http://www.sfasu.edu/upp/pap/academic_affairs)

Mail: Please check your SFA Titan email account regularly. Email will be the official tool for communicating the important reminders, announcements, and further assignment directions. You can forward your Titan account to your preferred email address.

Academic Integrity (A-9.1)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.
Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Responsible Use of Technology
It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course is unprofessional and may be grounds for dismissal from class or other penalties. Use of laptops in such a way that is disturbing to other students will not be permitted. Lectures may be recorded by students.

Classroom Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Wood Species Reports

During lab, a wood block will be given to you, which is yours to keep. You will write a paper on that species. This paper will be a minimum of 5 pages of double-spaced text in length, not including pictures, figures, or literature cited. This paper should be about this wood species only. The following topics must be covered:
1. Geographic range and extent
2. Tree Characteristics
3. Wood Properties (Appearance, Odors, Anatomy, Specific Gravity, Durability, Strength, etc) and unique features
4. Chief past and current wood uses
5. Overall economic value and potential uses or development for higher future value.

You must cite references for this information, including at least 3 sources from journals or books (not from the internet).

The paper should follow this format:
I. Introduction – introduce the species and relevant information about it.
II. Species Information – subdivide this section into relevant subsections (above)
III. Conclusions – state most important findings about species, and emphasize potential for future value-added uses.
IV. Literature Cited – Use the format from the ATCOFA Style Guide in D2L

The paper will be graded based on:
Content (were all topics addressed, etc) 50%
Quality (grammar, spelling, punctuation, etc) 30%
Format 10%
Creativity 10%