**Course Syllabus**

**FW 2051 – Field Techniques**  
**School of Forest Resources and Environmental Science**  
**Fall 2016, 2 credits**  
*this syllabus and calendar is subject to change by the instructor as needed*

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**Instructor Information**

Instructor: Dr. Tara L. Bal, CF, Research Assistant Professor  
Office Location: 128 U.J. Noblet Building (Forestry)  
Telephone: Office – (906)487-1898  
E-mail: tlbal@mtu.edu  
Office Hours: I have no specific hours because I have an open-door policy, which means you can stop by anytime the door is open! I check email frequently and you can always set up an appointment or see when I am busy anytime using Google calendar.  
Teaching Assistants: Shane Kleiman, sckleima@mtu.edu (Tuesday lab)  
Kaydi Picard, kepicard@mtu.edu (Wednesday and Thursday lab)  
TA Office Hours: By Appointment (Google Calendar is a good start.)  
Though TAs have a lab day appointment, they may move around in labs. Feel free to contact any of them if you need help!

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**Course Identification**

Course Number: FW 2051-L01, L02, L03, R0A  
Course Name: Field Techniques  
Course Location: G002 for Tuesday meeting (meet in Atrium to travel for labs)  
Class Times: Tues Recitation 1-2pm, Labs Tues 2-5pm, Wed 1-4pm, Thurs 2-5pm  
Prerequisites: none

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**Course Description**

This course provides a basic overview of equipment and techniques used to measure forest ecosystem attributes and perform fieldwork. Topics include field safety, land measurement and navigation, establishment of sample locations, measurement of attributes of individuals and groups of trees, vegetation and other organisms. Students will be introduced to methods used in forestry, wildlife, ecology, water quality, and recreation management.

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**Course Learning Objectives**

Through a series of 14 lab exercises (13 of which are outdoors), students will learn how to measure and interpret a variety or forest ecosystem attributes.

1.) Become proficient in the use of tools and techniques commonly used by natural resource professionals.  
2.) Gain confidence in navigating through unfamiliar forested landscapes.
3.) Develop effective, technical, written communication skills and practice effective soft skills for professionals.
4.) Eliminate human (measurement) error when sampling a variety of ecosystem features.

Course Resources

Course Website(s)
- Canvas [http://www.courses.mtu.edu](http://www.courses.mtu.edu) OR MyMichiganTech OR [https://mtu.instructure.com/](https://mtu.instructure.com/) (lots of ways to access, use your favorite)
- Students are expected to bring all material, printed by themselves ahead of time to each class. The exception will be Week 1, where I will bring extra copies.

There are no required Course Texts
Though you may find several useful ones to have around that may be required for other classes.

Course Fees
There is a lab fee associated with this course (to cover transportation and equipment replacement).

Course Supplies
Required – bring to every outdoor lab.
- **Compass with Azimuths** (Suunto Navigator or Silva Ranger) – approximately $50 from MTU bookstore, BenMeadows, or Forestry Suppliers ([www.forestry-suppliers.com](http://www.forestry-suppliers.com)). Some people in the profession prefer a sight compass, such as the Suunto KB-14D (but if you do get one, be sure to get azimuths with declination adjustment, which is more expensive, but needed for accuracy). The MTU bookstore should have Suunto MC2 Navigator compasses with declination.
- **Diameter Tape** (dtape) – we will record and report figures in English units for this course. You may use a fabric or steel tape, and a manual or self-winding loggers tape. Many d-tapes have tree diameter on one side and regular measurements on the other side. The bookstore will have forestry suppliers English steel diameter tapes, model 347D. Don’t get the cheap $12 one, as it will most likely break the first day.
- **Hard hat** – available from Swift’s hardware ($7-$10) and other area hardware stores, Forestry Suppliers, or local chainsaw dealers. Superior Rent All on US-41 just south of campus probably carries them too. **You will not be allowed to participate in the field without a hardhat after Week 1.** It’s not just safety, its professionalism.
- **Storage Clipboard** – a full size clipboard with a storage pocket is useful for taking notes, recording measurements, and keeping data sheets handy and legible in all
weather. The bookstore should have Saunders metal storage clipboards. Every outdoor professional should have one.

- A cheap calculator but NOT a graphing calculator and NOT just your phone. Bring one to every lab and class. A TI-30X is about $12, but one from the dollar store is fine too.
- Do NOT come to lab wearing flip flops, sandals, shorts, sundresses, etc! Please wear appropriate clothing for working in the woods. We will be going out in all weather for labs, unless there is lighting (that means yes, you may get rained or snowed on).

Recommended to have on hand....

- Rain gear
- #2 pencils and small pencil sharpener.
- Work boots with good ankle support are highly recommended to avoid sprained ankles. Loggers and foresters often buy boots with steel shanks to prevent branches and twigs from penetrating the sole. Good tennis shoes work until it snows heavily or we get a lot of rain!
- A good idea is to always have on hand a “gear bag” or backpack with the following: light jacket, warm coat, warm hat, gloves, rain gear, extra socks, a water bottle, and bug spray (bugs should not be a big problem this time of year). We will be outside in any and all weather, unless thunderstorms or hail make conditions unsafe.

**Grading Scheme**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Grade points/credit</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92% &amp; above</td>
<td>4.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>83% – 91.9%</td>
<td>3.00</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>71% – 82.9%</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>60% - 70.9%</td>
<td>1.00</td>
<td>Inferior</td>
</tr>
<tr>
<td>F</td>
<td>59% and below</td>
<td>0.00</td>
<td>Failure</td>
</tr>
</tbody>
</table>

**Grading Policy**

Grades will be based on the following:

<table>
<thead>
<tr>
<th>Field Tests</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Reports</td>
<td>40%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Missed Class and Tardiness**

Students are expected to attend all classes, labs and labs cannot be made up, except with instructor approval. In the event of illness or emergency, an alternate assignment may be given by the instructor, provided a written notice is received from the doctor (this is University policy). Family emergencies will be handled by the instructor on a case by case basis. If you are attending a conference or some other meeting, that counts as an excused absence! Please let me know ahead of time, and we will work on an alternate assignment. Students are not permitted to submit lab reports for labs that were missed without legitimate reason. We will leave promptly at the scheduled lab start time. If you are going to be a few minutes late, notify the instructor (or TA’s) ahead of time.
**Field Tests**

You may be asked to retake a failed field test at any time during the semester (schedule with instructor and/or TA’s) and keep whichever is the higher grade, but not on the same day as when you originally took the test. This is up to the instructor’s discretion, though one of the goals of Field Techniques is that all students should pass a field test before moving onto another level of field skills. Any cheating on field tests will not be tolerated i.e. you will receive a warning for talking and then a zero grade for that test with no option for retaking it.

**Lab Reports**

*All lab reports are due the following week at the start of your lab section.*  The labs are all listed on the website. Late lab assignments are **not** tolerated. You are embarking on your professional career now! Many of the labs will be done in teams of two or 3. The instructor or TA will make all team assignments. Lab reports are to be done on an **individual basis**, not as a team.

**Preparedness**

One Lab report grade will be made throughout the entire semester and is based on your preparedness for lab and general professionalism throughout the course. At the start of each lab, TAs will keep track of any late assignments, forgotten hardhats, missing clipboards, etc. You may not think these things matter so much in a college course, but your future employers certainly will notice if you often show up unprepared! Late Quizzes will also count towards this grade. This will be a lab report worth 42 pts (14 weeks *3pts = 42).

**Reading Assignments and Quizzes**

All reading assignments must be completed before the class in which they are used for (with the exception of the first week). Quizzes will draw heavily from these and will be given during the Tuesday meeting time. Anything in the readings, labs, or class discussions may be material for quizzes. If you know you will be absent for a quiz for a legitimate reason, talk to the instructor.

**Course Policies**

You are expected to bring hardhats to class every week, walk carefully in the forest and perform all work in a professional manner. This means, please don’t climb trees, knock down snags, or act in a manner unbecoming. Unsafe behavior is unacceptable, including improperly dressing for lab. No alcohol or tobacco products are allowed during class time. Cell phone use is not allowed, especially during the field tests, with the exception that during lab times, taking photos of measurement techniques, plant specimens, or other related class activities is allowed. We may be walking or traveling in MTU vehicles for labs, driven by the instructor, TAs, or possibly fellow students.

**Collaboration/Plagiarism Rules**

Cell phone use is not allowed, especially during the field tests. Phones with cameras are the exception that during lab times, taking photos of measurement techniques, plant specimens, or other related class activities is allowed and may be used in reports if applicable.

Please make sure to bring a calculator with you to class. Calculators on other devices are prohibited as information exchanges on these devices during class are also prohibited and violate the Academic Integrity Code of Michigan Tech.
University Policies (required in every syllabus)

Student work products may be used for purposes of university, program, or course assessment. All work used for assessment purposes will not include any individual student identification. Michigan Tech has standard policies on academic misconduct and complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. For more information about reasonable accommodation for or equal access to education or services at Michigan Tech, please call the Dean of Students Office, at [906] 487-2212.

Lab Report Rules:

MUST BE DONE INDIVIDUALLY with data collected by the group. You are free to seek assistance from class members on how to perform calculations and how to create/format charts and tables, but all research into wildlife habitat requirements, specific species, recommendations and conclusions must be done by yourself. Follow the instructions given to you on each specific lab, but pay attention to the general rules below.


b. Scientific Format – All typed reports will be done using scientific format for titles (lab description) and subtitles (Introduction, Methods, Results/Discussion, and Conclusion). Use the lab Report form in Canvass, unless given other instructions on the lab handout.

c. Peer Reviews: On each lab report students will rate their partners’ participation on a scale of 1 to 3 (1 is the highest). See example in Canvas. This potentially could affect your grade, but more importantly, also forces you to know who your peers are!

d. General Guidelines:

1. Titles should be bold and larger than the body of your text. Subtitles should be bold and sometimes larger than your text.

2. Lab reports should be single spaced with a font size no larger than 12 point. Times New Roman, Cambria, Calibri, or Arial are acceptable fonts.

3. gRAMMER and speling are gigantically vital. Would you submit the preceding sentence in a report to your boss? During your career, people will think much higher of you if you have good writing skills. If you need pointers on this, I’m available to help. Do knot rely on grammar and spill check alone.

4. Graphs, charts and tables are great visual tools to communicate your results to the reader. However, they should only be used where appropriate and where they add something to the report. In general for this class and the type of numbers we will use, if you have a graph or chart, you should have a table showing the same data in detail. If you need help with Word or Excel in creating tables, charts or graphs before we have the Excel lab, please see me or a TA or ask a question about it during Tuesdays class!

5. ALL maps, tables, graphs, figures, photos, etc., should be readable, appropriate, and labeled. If it is a graph, label each axis and give it a title. Look around at some of the maps that are
displayed throughout the building. Are the colors appropriate? Are the colors different enough to be distinguishable on the map? Are they zoomed in or out to far (what’s the scale?) How are the titles and legends displayed?
Course Schedule (date listed is the Tuesday of that week). It is subject to change if needed!

Yellow highlights are weeks I am scheduled to likely be gone. Green highlights are weeks with van reservations.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Location</th>
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<tbody>
<tr>
<td>Week 1: August 30</td>
<td>Compass, Pacing, and GPS</td>
<td>Tech Trails (walk)</td>
</tr>
<tr>
<td>Week 2: September 6</td>
<td>GPS, Vegetation Sampling, Wildlife Impacts</td>
<td>Tech Trails at Mill Rd – vans</td>
</tr>
<tr>
<td>Week 3: September 13</td>
<td>Bird Point Counts</td>
<td>Tech Trails and Nara vans</td>
</tr>
<tr>
<td><strong>Field test 1 - Pacing</strong></td>
<td></td>
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<tr>
<td>Week 4: September 20</td>
<td>Recreation Assessment and Water Quality</td>
<td>Hungarian Falls vans</td>
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<tr>
<td><strong>Field test 2 – GPS (NCFPW)</strong></td>
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<tr>
<td>Week 5: September 27</td>
<td>Down Dead Wood, Fire &amp; Fuels</td>
<td>Otter River Camp vans</td>
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<tr>
<td>Week 6: October 4</td>
<td>Diameters, Heights, &amp; Merchantability of Trees</td>
<td>Tech Trails (walk)</td>
</tr>
<tr>
<td>Week 7: October 11</td>
<td>Fixed Area Plots - Pine Plantation</td>
<td>Tech Trails (walk)</td>
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<td><strong>Field test 3 - Diameters</strong></td>
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<tr>
<td>Week 8: October 18</td>
<td>Fixed Area Plots - Northern Hardwoods</td>
<td>Tech Trails (walk)</td>
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<tr>
<td>Week 9: October 25</td>
<td>Excel lab - Data Processing</td>
<td>Computer lab</td>
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<tr>
<td>Week 10: November 1</td>
<td>Prism Practice and Point Sampling in Conifers</td>
<td>Tech Trails (walk)</td>
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<tr>
<td><strong>SAF conference</strong></td>
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<tr>
<td>Week 11: November 8</td>
<td>Point Sampling in Mixed Hardwoods</td>
<td>Tech Trails (vans)</td>
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<tr>
<td>Week 12: November 15</td>
<td>Point Sampling</td>
<td>Tech Trails (vans)</td>
</tr>
<tr>
<td><strong>Field test 4 – Point Sampling</strong></td>
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<tr>
<td>Week 13: November 29</td>
<td>Increment Borer, Trimble, Relaskop, Other</td>
<td>Forestry Building Area</td>
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<td></td>
<td>Measurement Tools and Sample Processing</td>
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<tr>
<td>Week 14: December 6</td>
<td>Wildlife Radio Telemetry, Trapping, Sexing, and Aging</td>
<td>Forestry Building Area</td>
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</tbody>
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There is no final exam for this course during finals week.