FORS 341 Timber Harvesting and Forest Roads
Spring 2021

<u>Course and Instructor Information</u>

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Class Times: Lecture: MW 8:00-8:50
Lab: W 12:00-4:10
Zoom Link:
Required Text: Water Quality BMPs (Best Management Practices) for Montana Forests
                 Montana Guide to the Streamside Management Zone Law and Rules
                 (these can be picked up in the main FCFC office)
                 Other readings as assigned (available in class Moodle)

<u>Course Description:</u>

An overview of harvesting system capabilities and selection for multiple resource objectives. Fundamentals of forest road management. Best management practices as they apply to forest operations in Montana and the western US.

<u>Course Learning Objectives:</u>

At the end of this course, students will be able to:
- Identify harvesting systems common in North America
- Understand basic safety principles applied to harvesting operations
- Match stand, terrain, and management goals to appropriate harvesting systems
- Have a working knowledge of forest road form and function
- Understand how road management decisions impact the safety, cost effectiveness, and environmental performance of forest road systems
- Demonstrate improved technical writing skills

FORS 341 is one of the WA Franke College of Forestry and Conservation's distributed advanced writing courses.

Approved writing course learning outcomes:
- Use writing to learn and synthesize new concepts
- Formulate and express written opinions and ideas that are developed, logical, and organized
- Compose written documents that are appropriate for a given audience or purpose
- Revise written work based on constructive feedback
- Find, evaluate, and use information effectively and ethically
- Begin to use discipline-specific writing conventions
- Demonstrate appropriate English language usage

Advanced Writing Requirement in the Major Outcomes
- Identify and pursue more sophisticated questions for academic inquiry
- Find, evaluate, analyze, and synthesize information effectively from diverse sources
- Manage multiple perspectives as appropriate
- Recognize the purposes and needs of discipline-specific audiences and adopt the academic voice necessary for the chosen discipline
- Use multiple drafts, revision, and editing in conducting inquiry and preparing written work
- Follow the conventions of citation, documentation, and formal presentation appropriate to that discipline
- Develop competence in information technology and digital literacy

Course Policies:
- Unless otherwise specified, all assignments are to be submitted electronically through the course Moodle.
- Late assignments will not be accepted.
- All work must be neat, legible and complete.
- In order to be afforded accommodation, all absences from lab activities or exams must be arranged PRIOR to the missed class.
- While you are allowed to work with fellow students on individual assignments, all submitted assignments must represent your own individual work.
- Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154 or (406)243-2243.
- All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: Student Conduct Code.
- Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Office of Student Success for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable her to provide any resources that she may possess.

Lab policies:
- No personal vehicles are allowed unless prearranged.
- Vehicle opponency limited to one person per row unless persons from the same household share a personal vehicle. Masks are required at all times.
- No pets are allowed in vehicles or on field labs. If a service animal is required, arrangements must be made ahead of time and expectations agreed upon to minimize distractions and keep all beings involved safe.
- Labs will only be canceled based on unexpected operational challenges experienced by our host or extremely hazardous driving conditions. These cancelations will be communicated to students via official UM email as soon as a cancelation is known as well as in lecture.
- It is the students' responsibility to dress appropriately for weather and field conditions. This

includes warm boots with adequate traction on snow and ice. Expect field labs to include 1-2 hours out of vehicles observing active forest operations, both walking over rough terrain and standing still.

<u>Important deadlines for changing course options</u>

Feb 1	Last day to drop classes on Cyberbear. Last day to drop a course without a "W" assigned to the course.
Feb 2 – March 18	(45th instructional day). Dropping a course requires a drop/add form **with instructor and advisor signature**. There is a $10 fee at the registrar's office. The course will appear on your transcript with a grade of "W".
March 19 – Apr 23	At this point in the semester students are only allowed to drop a class **under very limited and unusual circumstances**. Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, or deciding you want to change majors are not among those limited and unusual circumstances. If you want to drop a class for these sorts of reasons, make sure you do so before April 4.

<u>Grading:</u>

Lab reports (3):	150 points
Weekly quizzes (15):	150 points
Peer learning assignment:	50 points
Final project:	50 points

Please note, this class is offered for traditional letter grade only, it is not offered under the credit/no credit option*. A standard +/- grading scale will be used. Final course grades will be adjusted down (never up) if necessary; a curve will not be applied to individual exams or assignments.*

Lab reports (50 points each):

Due to covid transportation restrictions (no more than one passenger per row in vehicles, masks required at all times), only 3-5 students will travel to the field each week. These students will create digital content to share the field visit with the remainder of the class, including photos, video, and written descriptions. The group attending each field visit will delegate the following content to individual attendees:

- A description of the operation, such as:
    - Landowner and contractor names
    - Equipment used
    - Tasks performed by each piece of equipment or individual
    - Order of operations
- Goal(s) of the operation (i.e. thinning for fuel reduction, salvage logging, road maintenance to reduce environmental impacts, etc.)
- Special considerations and how these considerations are met with the specific operation (i.e. riparian areas, sensitive soils, neighbor concerns, aesthetics, etc.)
- Other observations deemed noteworthy

Each lab report will be graded as follows:
First draft due by 8 am Monday following field visit (including holidays), 20 points, graded for content. This will be a 5-10-page written report containing photos, video, and explanatory text.

Comments will be returned to students by 8 am on Tuesday.
Second draft due by 8 am Wednesday, 20 points, graded for writing. Written documents will be combined into a single document to be distributed to the class.
Presentation in lab, noon on Wednesday, 10 points.

Weekly quizzes (10 points each):

Quizzes will be posted each week in Moodle and must be completed between noon on Thursday and noon on Friday (including "rest" days). Upon starting each quiz, you will have 20 minutes to complete your response(s). These quizzes are open book/open note yet your work must be your own.

Peer learning assignment (50 points):
Working in groups of 3-4, you will prepare and deliver a 10 (+/-2) minute presentation (25 points) covering the following to peers from University of Minnesota and University of Maine (tentative):
- Overview of forestry in Montana
    - Ownership pattern
    - Species/forest types
    - Predominant silvicultural systems
    - Markets (primary products, distance)
    - Primary season(s) of operations/ operational constraints
    - Terrain/topography
    - Dominant harvest systems
- Regulatory framework
    - Law (required) or voluntary
    - Rules regarding water (i.e. buffer widths, stream classifications)
    - Other rules (general overview)
- Breadth of resources protected by BMPs/guidelines

After the presentation, each student will prepare a 3-5-page paper summarizing the key factors impacting the practice of forestry in the other state(s) and comparing/contrasting those practices with Montana (25 points).

Final project (50 points):
After reading "Challenges in Forest Road Maintenance in North America" (posted in Moodle), select a road topic of your choice and create a 5-8-minute video. Movies will be screened during the final exam period. Grades will be based on a written transcript of the movie (including at least 3 outside sources) (30 points) and the clarity of presentation of the topic within the video (20 points).

Schedule of Topics:

Week of:	Monday lecture	Wednesday lecture
1/11	Course introduction Hand Felling/processing	Soil mechanics for in- woods operations, Mechanical felling and processing
1/18	No class	Ground skidding
1/25	Ground skidding safety and BMPs	Tethered/steep-slope ground-based systems
2/1	Biomass and mastication	Skyline
2/8	Skyline/Helicopter	Skyline safety
2/15	No Class	Logging systems
2/22	Logging systems	Chad Bolding, Virginia Tech, Procurement
3/1	Logging costs	Loading and hauling
3/8	Soil mechanics for forest roads	Road form and function
3/15	Road drainage	Stream crossings – culverts
3/22	Stream crossings – sizing and fish passage	Stream crossings – bridges and fords
3/29	Stream crossings – temporary options	Crossing selection
4/5	Road removal	Road removal
4/12	Road management	Road management - upgrades
4/19	Road management – other considerations	Course review
4/27	Final presentations, 10:10-12:10, Friday, 4/30	