# Course Outline Form: Fall 2015

## General Information

**Course Title:** ENVS\*4350 Forest Ecology

**Course Description:** Principles of forest ecology with emphasis on the ecological principles needed for sound forest management. Biotic and abiotic components of forest ecosystems will be discussed in the context of energy flow, nutrient cycling, forest succession and appropriate silvicultural systems. Pre-requisites: BIOL\*2060 or [ENVS\*2330](http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c12/c12envs.shtml#ENVS2330) Equates: ENVB\*4780

**Credit Weight:** 0.5

**Academic Department (or campus):** School ofEnvironmental Sciences

**Campus:** Guelph

**Semester Offering:** Fall

**Class Schedule and Location:** Lectures - MCKN, Room 234, Tues., Thurs., 1:00PM –2:20PM

Labs – MCKN, Room 235, Wed., 2:30PM – 5:20PM

(and field locations)

## Instructor Information

Instructor Name: Professor Andrew M. Gordon, B.Sc.F., Ph.D., R.P.F.

Instructor Email: agordon@uoguelph.ca

Office location and office hours: Alexander Hall, Room 121C (enter through Room 121)

Office hours by appointment. Thursday afternoons are best, but I am flexible. Set up an appointment by before or after class, oin person, by phone or email.

Phone: 519-824-41230 ext. 52415, 53488 (Lab: 58691)

## GTA Information

GTA Name: TBD

GTA Email: TBD

GTA office location and office hours: TBD

Lab contact: Mohammed Idris (Alexander Hall, Room 121B; midris@ugouelph.ca)

## Course Content

### Specific Learning Outcomes:

The learning outcomes are as follows: 1) to understand the complexity of the natural forest at the scale of both cells and landscapes 2) to appreciate the importance of time to processes at work in forested systems 3) to understand the principles of nutrient cycling and energy flow in the forest 4) to appreciate how complexity and processes in the forest might be compromised upon disturbance, natural or anthropogenic and 5) to appreciate the rigours of field work in the forest, by using and understanding protocols designed to evaluate forest structure and processes. The assessment tools have been explicitly designed to measure student understanding of these outcomes - see Course Assignments and Tests.

This course embraces, as best it can, the 4 pillars of learner-centredness: self-reliant learning, research-teaching link, skill-development and experiential learning.

### Lecture Content:

The course will first examine the nature of ecosystems in general, including their emergent properties (e.g. resilience, stability, efficiency, etc.), and the importance of ecosystem integrity to today’s society. Emphasis will obviously be on forest ecosystems. We will then examine the flow of energy through the forest and discuss the impacts of changing this energy flow through harvesting, etc. We will also examine some of the important processes that control ecosystem structure, function and integrity. We will examine change in the nature of forests over time through successional processes and look at different ways in which these processes can be modeled. Interactions between system components within ecosystems (and between ecosystems – e.g. aquatic-terrestrial) will be emphasized. An overall and general understanding of processes at work within the forest ecosystem will be favoured over the acquisition of static descriptive information about forests.

Material will be presented in traditional lecture format, with overheads, slides and guest lecturers utilized as appropriate. The lab session will be utilized to investigate the ‘properties’ of some close-by forested areas of different species composition, structure and history. A series of lab exercises will be conducted. Later in the semester, the lab may be devoted to group discussion, break-out groups, presentations, debates, etc.

The lecture portion of this course has changed over the past several years from 3, 1-hour lectures, to 1, 3-hour lecture, to its present format of 2, 1.5 hour lectures. Topics and dates are therefore approximate, as the lectures are currently being re-vamped to fit new time slots. It is quite likely topics will vary as guest lecturers and video presentations are most likely to be incorporated.

Lecture Topic

1 (Sept. 10) Introduction – course format, overview, instructors

2 (Sept. 15) Project overview, population growth, global importance of wood

3 (Sept. 17) Review: shade tolerance, uneven vs. even-aged forests, silvicultural systems, succession, scale

4 (Sept. 22) Review continued

5 (Sept. 24) Structure of forests: trees, substrate, other plants, fauna, microorganisms, atmosphere/climate and resulting disturbance

6 (Sept. 29) Structure of forests continued

7 (Oct. 1) Principles of forest ecology

8 (Oct. 6) Forest function: fluxes, pools, systems analysis

9 (Oct. 8) Ecosystem-scale studies

(Oct. 13) Study-break, no class

10 (Oct. 15) Calculating pools and fluxes

(Oct. 20) Midterm, in class

11 (Oct. 22) Biomass measurement, moisture content, forest biogeochemistry

12 (Oct. 27) Biogeochemistry, Hubbard Brook, redox reactions

13 (Oct. 29) Soil nitrogen mineralization

14 (Nov. 3) Energy in forests, Net primary productivity (Remembrance Day Lecture)

15 (Nov. 5)NPP – increment, litterfall, mortality, herbivory, respiration

16 (Nov. 10)Carbon sequestration in forests

17 (Nov. 12)Detrital processes in forests

18 (Nov. 17) Light relationships in forests, leaf morphology, autumnal colouration

19 (Nov. 19) Forests and wind

20(Nov. 24) The interaction of aquatic and forested terrestrial systems

21 (Nov. 26)Ecological processes in agroforestry systems

22 (Dec. 1) Modelling forest ecosystem dynamics

22 (Dec. 3/4) Summary, recap, miscellaneous topics

### Labs:

There are 5 labs to be completed over the course of the semester, at the rate of approximately 1 lab every two weeks. Some labs are singular and can be completed in 1 lab period; others are stretched out over the semester. This will be explained to you in detail. Please refer to lab manual. Students are advised to dress appropriately for the weather on hand – no labs will be cancelled because of bad weather. Wear appropriate footwear for walking in forest situations.

### Seminars:

See next section. There are no formal seminars scheduled, but if students choose to present or conduct a seminar as part of the ‘Other’ assignment category, these will be scheduled into the latter portion of the course.

### Course Assignments and Tests:

| **Assignment or Test** | **Due Date** | **Contribution to Final Mark (%)** | **Learning Outcomes Assessed** |
| --- | --- | --- | --- |
| Mid-Term Examination | Tuesday, October 20, in class | 20 | 1,2 |
| Laboratory Exercises | Refer to Lab Manual | 35 | 5 |
| Other1 | To be discusses | 25 | 1,2,3,4,5 |
| Final Examination2 | Mon.,Dec. 14, 2:30PM – 4:30 PM | 20 | 1,2,3,4,5 |

Additional Notes (if required):

1 A variety of options will be presented to you early in the semester. You will be able to choose from a variety of assignments, group projects and presentations, a debate, or actual field/lab research.

2 A set date for a final exam has been set. However, options do exist for a take-home exam and will be discussed in class.

### Final examination date and time: Monday, December 14, 2:30PM – 4:30PM

### Final exam weighting: 20%

## Course Resources

### Required Texts:

Kimmins, J. P. 2004. Forest Ecology: A Foundation for Sustainable Forest Management

and Environmental Ethics in Forestry. 3rd Edition, Prentice-Hall, NJ. 611 p. +

A copy of this text will be at the reserve desk, under ENVS\*4350.

### Recommended Texts:

Additional resources may be put on reserve as required.

### Lab Manual:

You will be required to purchase a lab manual for $10 or less. As the lab manual is used extensively in the field, it will not be available on reserve.

### Other Resources:

Web-sites will be referred to as appropriate. Lecture notes will be posted to Courselink after lecture.

### Field Trips:

There will be one local field trip at the beginning of the course. Refer to section on Labs, and Lab Manual.

### Additional Costs:

None other than the lab manual.

## Course Policies

### Grading Policies:

For labs, and assignments (listed as other above), specific dates for completion exist and will be provided as assigned. Work must be handed in by the due date. If suitable documentation regarding illness, personal stress, family grievance, etc. is not provided, marks will be deducted at a rate of 10% (of the assignment’s value) per day for a period of 1 week, after which they will not be accepted.

### Course Policy on Group Work:

Lab work is performed in groups, the size and nature of which will be determined by the T.A. on the first day of the labs. If you have a small core of individuals that you have historically worked with and are comfortable with, you are welcome to suggest a potential group to the T.A. Keep paper and/or other reliable electronic back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor. Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the written permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

The use of computers to take notes in class is allowed. The use of computers in class for any other purpose, including emails and social networking is not allowed. Individuals caught doing the latter will be barred from class.

## University Policies

### Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml).

### Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml).

### Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website (http://www.uoguelph.ca/csd/)](http://www.uoguelph.ca/csd/).

### Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](https://courseeval.uoguelph.ca/) **for more information.**

### Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III (Schedule of Dates) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/).

## Additional Course Information

In this course, your instructor will be using Turnitin, integrated with the CourseLink Dropbox tool, to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph.

All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.