

**BIOLOGY 2240**  
**THE NON-FLOWERING PLANTS**  
**COURSE OUTLINE - 2017**

**Course Description (modified from course calendar)**

This course is an introduction to the major groups of non-vascular and vascular plants specifically treating the morphology, anatomy, and evolution of mosses, liverworts, hornworts, ferns and other seedless vascular plants, gymnosperms (non-flowering, seed-bearing vascular plants), and angiosperms.

**General Information**

**Instructors**

Dr. Bruce Ford, Room 433 Buller  
 474-6994  
 bruce.ford@umanitoba.ca

Dr. Carla Zelmer, Room 219 Buller.  
 480-1454  
 carla.zelmer@umanitoba.ca

**Office hours**

Tuesday and Thursday 10:00-11:00 am. Messages may be left in the Department of Biological Sciences main office, 212B Biological Sciences Building.

**Lectures**

Tuesday and Thursday 8:30 am -9:45 am. Room 315 Buller.

**Laboratory**

Wednesday 2:30-5:30 pm **OR** Wednesday 6:00-9:00 pm. Room 314 Buller.

**Textbooks**

Evert, R. F. and S. E. Eichhorn. 2013. *Raven Biology of Plants*, 8<sup>th</sup> edition. W. H. Freeman and Company, New York.

Used copies of *Raven* are widely available for purchase. For those of you buying a new copy of the text, the following versions are available from the Bookstore:

- Hard copy
- Loose leaf version
- LaunchPad (electronic version of text, 6 month access)

To access the LaunchPad version of the text, go to: <http://www.macmillanhighered.com/launchpad/raven8e/4829586>, select “I have a student access code,” enter the code exactly as it appears on the card that you purchased from the Bookstore and click “Submit”.

**Evaluation**

**15%** Mid-term test; **10%** Lab assignments; **15% ; 30%** Final lab examination; **40%** Final lecture examination

**Important dates**

January 26	Lecture cancelled
February 1	Lecture during lab – 315 Buller Building
February 8	Labs start – 314 Buller Building
February 20-24	Mid-term break
March 1	No lab
March 2	Mid-term exam
March 31	Voluntary withdrawal deadline
TBA	Final lab examination
TBA	Final lecture examination

### Lecture Topics

1. Introduction
2. Evolutionary processes
3. Systematics: the science of biodiversity
4. Bryophyta (mosses)
5. Marchantiophyta (liverworts)
6. Anthocerophyta (hornworts)
7. Organization of the vascular plant body
8. Lycopodiophyta (club mosses, spike mosses, quillworts)
9. Monilophyta (whisk ferns, grape ferns, marattioid ferns, horsetails, true ferns, royal ferns, water ferns)
10. Evolution of seed and pollen
11. Coniferophyta (conifers)
12. Ginkgophyta (ginkgos)
13. Cycadophyta (cycads)
14. Gnetaophyta (gnetophytes)
15. Introduction to the Anthophyta (angiosperms)

### Labs (all labs are held in 314 Buller Building except where noted)

Date	Content	Evaluation
February 1	Lecture during lab slot – 315 Buller Building	NA
February 8	Lab 1. Microscope /Bryophyta I (mosses)	Drawing
February 15	Lab 2. Bryophyta II (mosses)	Drawing
March 8	Lab 3. Marchantiophyta (liverworts) / Anthocerophyta (hornworts)	Drawing
March 15	Lab 4. Lycopodiophyta I (club mosses, spike mosses)	Drawing
March 22	Lab 5. Lycopodiophyta II (quillworts) / Monilophyta I (whisk ferns, horsetails)	Drawing
March 29	Lab 6. Monilophyta II (grape ferns, ferns)	Drawing
April 5	Lab 7. Coniferophyta (conifers)	Drawing
April 12	Lab 8. Cycadophyta (cycads) / Ginkgophyta (ginkgos) / Gnetaophyta (gnetophytes)	Drawing
April 19	Practice Lab Exam	NA

### Expectations of Students

Attendance at lectures and labs is mandatory. You are responsible for material covered in lecture and lab, assigned readings, and any announcements made in class. During class time, students are encouraged to ask questions related to the course material presented. The University of Manitoba fosters a respectful work and learning environment; professors treat students with respect, and expect the same courtesy is return. Policies regarding behavior can be found at:

[http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html)

[http://umanitoba.ca/admin/governance/governing\\_documents/community/669.html](http://umanitoba.ca/admin/governance/governing_documents/community/669.html)

### Course Materials

Lecture handouts, and select files posted on UM Learn are made available for private study and research and must not be distributed in any format without permission.

### Grading and Examinations

#### **Course grading**

Final grades in this course are expressed as letters, ranging from D, the lowest passing grade, to A+ the highest. Each letter grade has an assigned numerical value, which is used to calculate grade point averages.

In this course, the following grading system is used:

A+ ≥ 90% ; A = 80 – 89.9%; B+ = 74 – 79.9%; B = 68 – 73.9%; C+ = 62 – 67.9%; C = 56 – 61.9%; D = 50 – 55.9%; F < 50%

#### **Examinations and grading policies and grade appeals resources**

Students are required to write three examinations in this course (i.e. the midterm, final lecture examination, final lab examination) and complete weekly lab assignments (to be handed in at the end of each lab). There are no exceptions to this requirement, under any circumstances. Failure to write an exam or hand in an assignment will result in a mark of 0% for that exam or assignment.

All examinations must be written during the scheduled exam time, except under very exceptional circumstances (e.g. serious illness). If you miss the midterm exam for personal or medical reasons, report to your instructor as soon as possible and provide written proof supporting your absence from the exam. The official policy of the University of Manitoba regarding missed final exams can be found at: <http://umanitoba.ca/student/records/finals/682.html>) and <http://umanitoba.ca/faculties/science/undergrad/resources/899.html>.

Final examination and grades policies can be found at:

[http://umanitoba.ca/admin/governance/governing\\_documents/academic/1299.html](http://umanitoba.ca/admin/governance/governing_documents/academic/1299.html). For more resources about examinations, see <http://umanitoba.ca/faculties/science/undergrad/resources/Academic%20Resources%20index.html>.

Students wishing to appeal their term work grade can do so through the Registrar's office. A fee is charged for each appeal. More information can be found at: <http://umanitoba.ca/student/records/grades/690.html>.

To view your final examination, please check with the Department of Biological Sciences main office. More information can be found at: <http://umanitoba.ca/faculties/science/undergrad/resources/895.html>.

To appeal your final grade, you can initiate the process at the Registrar's office. A fee will be charged for each appeal. See <http://umanitoba.ca/student/records/> for more information.

#### **General Information on Academic Regulations**

Students are expected to view the *General Academic Regulation* section within the Academic Calendar (<http://umanitoba.ca/student/records/academiccalendar.html>) and specifically read the *Academic Integrity* regulation. Visit the Academic Integrity Site for tools and support: <http://umanitoba.ca/academicintegrity>. A list of University governing documents pertaining to students can be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/students/index.html](http://umanitoba.ca/admin/governance/governing_documents/students/index.html).

#### **Academic Dishonesty**

Academic dishonesty is not tolerated at the University of Manitoba. Academic dishonesty ("cheating") takes many forms, and includes looking at another student's exam or allowing others to look at your exam. Never bring unauthorized materials (e.g. notes, cell phones) into the exam, and resist opportunities to look at someone else's examination paper. If you suspect that another student is looking at your exam, cover your paper, ask to be moved to another seat, and/or alert the exam invigilator.

**All cases of academic dishonesty will be reported to the Department Head and/or the Dean, Faculty of Science. When in doubt, please talk to your professor!**

The University Student Discipline By Law may be accessed at:

[http://umanitoba.ca/admin/governance/governing\\_documents/students/student\\_discipline.html](http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html). Information from the Faculty of Science regarding Cheating and Plagiarism can be found at: <http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html>.

#### **Limited access and VW resources**

Students who fail or VW from a course will be subject to limited access to that course in future terms. That is, students will not be able to register for a course (for which they have VWed or failed) during the limited access registration period. For more information, please see the policy document ([http://www.umanitoba.ca/admin/governance/media/Repeated\\_Course\\_Policy - 2016\\_09\\_01.pdf](http://www.umanitoba.ca/admin/governance/media/Repeated_Course_Policy - 2016_09_01.pdf)) for repeated courses.

#### **Use of Copyrighted Material**

The content used in this course is copied in accordance with copyright laws and University guidelines. No more than 10% of a copyrighted work has been used in the preparation of course materials. Attribution, when known, is provided on these materials. Copyrighted works, including those created by Dr. B. Ford, are made available for private study and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the University's Copyright Office website at: <http://umanitoba.ca/copyright>

#### **Recording Class Lectures**

Dr. B. Ford holds copyright over the course materials, presentations and lectures forming part of this course. No audio, video or photographic recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part, without explicit permission from Dr. B. Ford. Course materials (both paper and digital) are for the student's private study and research.

### **Course Technology**

Technology is to be used in a responsible, ethical and legal manner. Student may use technology in the classroom for educational purposes only, as approved by Dr. B. Ford and/or Student Accessibility Services. The following activities are not permitted during class time: (a) electronic messaging and posting, including email, texting, video or voice chat, wikis, blogs, social networking, etc.; (b) online and offline “gaming”. Use of cell phones during class time, is not permitted. Students on emergency call must switch their phone to vibrate mode, and leave the classroom before answering calls.

### **Class Communication**

Students are required to activate an official University of Manitoba email account, and to use this email account for all email communication between themselves and their professor or other University employees. When emailing a professor, use a proper salutation. “Hey prof” is not appropriate. Always include your name. If a professor does not know who you are, they will not respond to you. Use full, properly constructed sentences and do not use textese. For full details of the Electronic Communication with Students Policy visit:

[http://umanitoba.ca/admin/governance/media/Electronic\\_Communication\\_with\\_Students\\_Policy\\_-2014\\_06\\_05.pdf](http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-2014_06_05.pdf)

### **Academic, Health, and Wellness Support Available to Students**

#### **Student Accessibility Services (SAS)**

If you are a student with a disability, you may wish to contact SAS (<http://umanitoba.ca/student/saa/accessibility>) for academic accommodation support and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or believe they may have, a disability (e.g. medical, hearing, injury-related, visual, mental health, learning) are invited to contact SAS to arrange a confidential consultation.

520 University Centre; (204) 474-7423; [Student\\_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)

#### **Health and Wellness Referral Information Personal Support Available to Students**

For 24/7 mental health support, contact the Mobile Crisis Service at (204) 940-1781.

#### **Student Counselling Centre (SCC)**

Contact SCC (<http://umanitoba.ca/student/counselling/index.html>) if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling.

Student Counselling Centre: 474 University Centre or S207 Medical Services; (204) 474-8592

#### **Student Support Case Management (SSCM)**

Contact the SSCM (<http://umanitoba.ca/student/case-manager/index.html>) team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team (<http://umanitoba.ca/student/case-manager/statis/index.html>).

520 University Centre; (204) 474-7423

#### **University Health Service (UHS)**

Contact UHS (<http://umanitoba.ca/student/health>) for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.

104 University Centre, Fort Garry Campus; (204) 474-8411 (Business hours or after hours/urgent calls)

#### **Health and Wellness**

Contact our Health and Wellness Educator (<http://umanitoba.ca/student/health-wellness/welcome.html>) if you are interested in information on a broad range of health topics, including physical and mental health concerns and alcohol and substance use harms.

469 University Centre; (204) 295-9032; [Katie.Kutryk@umanitoba.ca](mailto:Katie.Kutryk@umanitoba.ca)

#### **Live Well @ UofM**

For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site: <http://umanitoba.ca/student/livewell/index.html>

#### **Sexual Assault Support and Education**

If you experience sexual assault or know a member of the University community who has, it is important to know there is a policy that provides information about: (a) support available to those who disclose, and (b) process for reporting. The *Sexual Assault* policy may be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html). More information and resources can be found at: <http://umanitoba.ca/student/sexual-assault>.

#### **Student Advocacy**

Contact Student Advocacy (<http://umanitoba.ca/student/advocacy>) if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

520 University Centre; (204) 474-7423; [student\\_advocacy@umanitoba.ca](mailto:student_advocacy@umanitoba.ca)