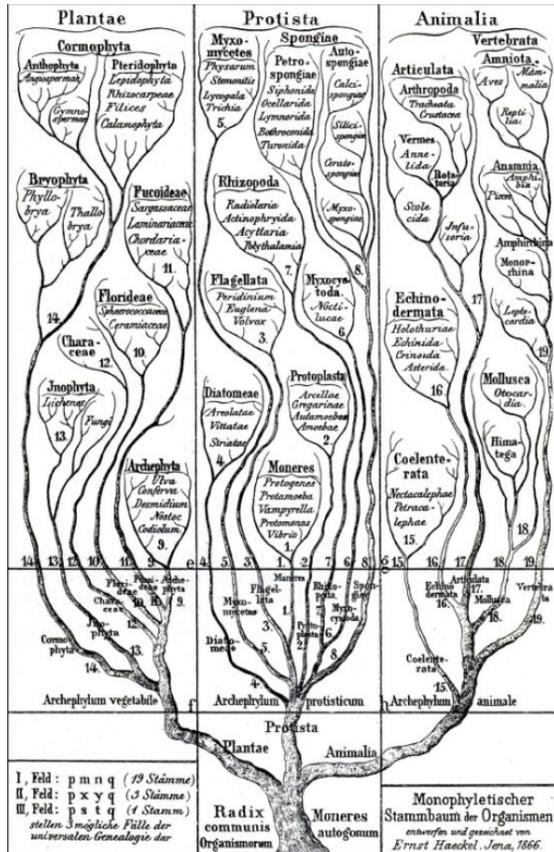


# BIO 1500: BASIC LIFE DIVERSITY (SECTIONS 001 and 500)



## Course Syllabus, Winter 2019 (4 credits with lab)

**Note:** Students must take both the lecture and laboratory components of this course

**Lecture venue:** Room 0146 DeRoy Auditorium

**Lecture times:** 9:30 pm – 10:20 pm; Monday, Wednesday, Friday

**Instructor:** Dr. Markus Friedrich

**Building and office number:** Biological Sciences 3117

**Office phone:** 313-577-9612

**Email address:** [friedrichm@wayne.edu](mailto:friedrichm@wayne.edu)

## PREREQUISITES

Students are required to have completed **EITHER** BIO 1050 (Introduction to Life) with a grade of C- or above, **OR** have an ACT score of 24 or higher, **OR** have a passing score on the Biology placement examination. Students who managed to enroll without satisfying these prerequisites are not likely to succeed in this course and will be required to drop it for this reason. See the Biology Department's Undergraduate Advisor, Ms. Kim

Walkowiak-Hunter ([kwalk@biology.biosci.wayne.edu](mailto:kwalk@biology.biosci.wayne.edu)), if you have further questions about the prerequisites.

## SCHEDULE OF LECTURES AND EXAMS

Posted online in google drive class environment:

<https://docs.google.com/document/d/1Hxs8mFpYe-OAeKDKa90XGmqsy4zPuMSliBHVHICVjRs/edit>

## REQUIRED TEXTS

- **Textbook:** Biology, 11<sup>th</sup> edition, by Raven, Johnson, Mason, Losos and Singer (ISBN-13: 978-1259188138, ISBN-10: 1259188132).
- **Laboratory Manual:** Biological Investigations - WSU Special 2014-2015 edition.

## RECOMMENDED SUPPLEMENTARY TEXTS

- Van De Graaff's Photographic Atlas for the Biology Laboratory, 7<sup>th</sup> edition by Adams and Crawley (ISBN: 9781617310584).
- The Invention of Nature: Alexander von Humboldt's New World, by Andrea Wulf (ISBN-10: 0345806298, ISBN-13: 978-0345806291)

## COURSE OBJECTIVES

This course is the first of two introductory biology courses for biology and science majors, including science education and pre-allied health students. It is required for students planning to major in biology and also a prerequisite for all higher-level biology courses. Content-wise, there are two proximate objectives: (1) Familiarize you with the scope and organization of our planet's biodiversity, and (2) train you in the conceptual tools used to elucidate the origins and sustenance of our planet's biodiversity. In other words, *this course will help you making sense of biodiversity*, meaning the over 2 million species on our planet. As ultimate objective, this course will give you the conceptual foundation to explore any specific field of biology, the science of living systems. To accomplish this, you will learn:

- How scientists name species and order their diversity into a system of groups (*descriptive approach*)
- How counting and comparing species numbers as well as trait diversity is pivotal for making sense of biodiversity, for instance, by revealing that terrestrial animals produced the by far more species than any other organismal group (*quantitative dimension and approach*)
- How the differences and similarities of different species are explained by “modification with descent”, i.e. the evolutionary processes that generated biodiversity (*evolutionary dimension and approach*)
- How the study of genome sequences sheds light on the diversification of species (*evolutionary dimension and approach*)
- That there is no species whose existence is not fully dependent on interactions with other species (*ecological dimension*)
- That interactions between species have been key in the ever increasing quantitative and structural expansion of biodiversity (*ecological dimension*)

## LEARNING OUTCOMES

Upon successful completion of this course, you will be able to:

- Explain what a **species** is
- Explain how and why species diversity is sorted into a system of nested **clades** based on **phylogenetic relationships**
- Recognize and test **phylogenetic relationships** that connect species and clades
- Apply the concepts of **homology vs homoplasy** to study the diversity of traits
- Functionally understand the major differences between major groups in the tree of life
- Point out key **adaptive trends** in the major domains of life
- Point out **major transitions** in the emergence of biodiversity
- Explain the significance of **species interactions, co-evolution and symbiosis** in the diversification of life
- View multicellular species as ecological units sustained by complex networks of host-symbiont interactions, i.e. apply **microbiome ecology**
- Use a **microscope** for detailed dissections
- Work as part of a **team** in the laboratory
- Exercise an **efficient learning habit** to master complex topics

## STUDENT LEARNING COMMUNITY SUPPORT

You are strongly encouraged to join one of our 4 student learning communities for this semester.



Your BIO 1500 learning community can be a powerful resource for success in this class. Our data from previous classes show that the introduction of the learning communities in large scale courses increased the pass rate by close to 15%!

**Note:** The learning communities may sit together in lecture.

**Peer mentors:** Each learning community will be mentored by an undergraduate BIO 1500 veteran, your peer mentor, and meet once a week (also known as small group meetings, team meetings or discussions).

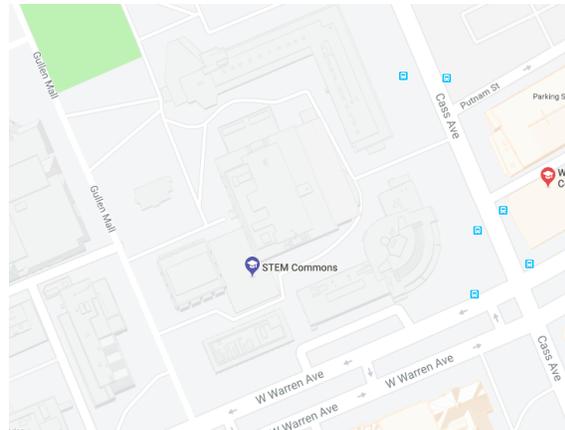
Ask your peer mentors about the material, study skills, research experiences, and how to succeed at WSU.

**STEM Commons:** Meeting and study space for the student learning communities in the building east of the Department of Biological Sciences:

<http://www.clas.wayne.edu/stemcommons/STEM-Commons-Map>. You will have weekly team meetings in the STEM Commons. Feel free to talk to any peer mentor there, not just your own. The STEM Commons is also great for independent small group study.

## OTHER STUDENT SERVICES

- The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit [www.success.wayne.edu](http://www.success.wayne.edu) for schedules and information on study skills, workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).
- The Writing Center is located on the 2<sup>nd</sup> floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit <http://clasweb.clas.wayne.edu/writing> to obtain information on tutors, appointments and the type of help they can provide.



### METHOD OF LECTURE INSTRUCTION

Discussion and study guided by lecture materials. All lecture materials are available in our online google drive class environment:

<https://drive.google.com/folderview?id=0B6RXcc7dd6COBWh0X1VxaVVUZzQ&usp=sharing>

**Note:** Lecture attendance is highly recommended and incentivized by **attendance bonus points:**

- **6 attended lectures ahead of each of the four midterm exams will be rewarded with 1 bonus percentage point added to the final average exam percentage score.** This can amount to a maximum of **4** percentage points added to your final average exam percentage score.
- Attendance will be scored by i>clicker response during lectures
  - **Note:** You have to have responded to >80% of the iclicker questions per lecture to satisfy the condition for attendance of lecture
- To enjoy this benefit, register your i>clicker on the Canvas course website asap!

### DR. FRIEDRICH'S OFFICE HOURS

Mondays 10.30 am to 11.30 am or by email appointment ([friedrichm@wayne.edu](mailto:friedrichm@wayne.edu)).

**Note:** Any questions regarding the lab portion of the course should be directed to your lab teaching assistant or Ms. Michelle Serreyn, Room 2012 Science Hall, e-mail: [michelle.serreyn@wayne.edu](mailto:michelle.serreyn@wayne.edu).

**Note:** The purpose of office hours is to discuss issues and questions that cannot be resolved with your peer mentor, the teaching assistant in your lab, or exploring the online Q&A documents specific for each section of the class:

- BIO 1500 Section 1: Essential concepts Q&A:  
<https://drive.google.com/drive/folders/1QbOUMInw9GM1-zVevHy7aUZhnFXrXEIF>
- BIO 1500 Section 2: All things unicellular or smaller Q&A:  
<https://drive.google.com/drive/folders/0B6RXcc7dd6COB2Y1clkwekdZRUK>
- BIO 1500 Section 3: Plants Q&A  
<https://drive.google.com/drive/folders/0B6RXcc7dd6COBWh0X1VxaVVUZzQ>
- BIO 1500 Section 4: Animals I Q&A:  
<https://drive.google.com/drive/folders/0B6RXcc7dd6COaUxwVXhqdnJ1SWc>
- BIO 1500 Section 5: Animals II Q&A:  
<https://drive.google.com/drive/folders/1PnewsnWePUjbvemIimvt5cTSifZWGv8l>

Thus, check for answers to questions arising in lecture in this sequence:

1. Online Q&A documents
2. Student learning community
3. Peer mentor
4. Dr. Friedrich

### CODE OF CONDUCT

**Lecture and lab:** You are expected to act professionally in lecture and laboratories:

- Turn off cell phones, smart phones, iPods, etc.
  - Talking on cell phones, texting, tweeting, surfing the internet, playing games, etc. distract you and others, and are hence inappropriate during lecture.
  - If you perform any of the above during lecture, you may be asked to leave the room.
- No talking during lecture unless discussion is invited

**Communication with your mentors:** Be professional when emailing Ms. Serreyn, your teaching assistant, or me. Include your course number in the subject line, a proper greeting (e.g., “[Dear Dr. Friedrich](#), [Dear Ms. Serreyn](#), or [Dear Ms/Mr/Mrs. Teaching assistant](#)”) and use correct punctuation, spelling and grammar. No texting abbreviations. This will prepare you to interact professionally with the peers of your future career environments.

You do not need to report to me that you will be missing lectures. Lecture attendance is highly encouraged through the i-clicker bonus points, as specified above, but attending lecture it is left to your discretion, preference, and responsibility as college student.

### LECTURE EXAM DATES

Midterm exam I:	Monday	January 28th
Midterm exam II:	Monday	February 25th
Midterm exam III:	Monday	March 25th
Midterm exam IV:	Monday	April 22nd
<b>Final exam:</b>	<b>Monday</b>	<b>April 29th: 8.00 - 10.00 am</b>

Note that the final exam will take place in the same room as the regular classroom. No other time for the final exam will be available, with the exception of the Final Exam Conflict policy (see below). Do not ask for exceptions based on travel plans.

Students with other exam scheduling conflicts (religious holidays (see below), exam overlaps or other legitimate reasons) must contact Dr. Friedrich in writing by class time on **January 15<sup>th</sup>**. No makeup exams will be given unless Dr. Friedrich has been notified in writing by this date. Reasonable exceptions will be granted in cases of illness or family emergencies, both of which will require notification prior to the exam and must be followed up with documented proof.

### Religious holiday conflicts (from the online Academic Calendar)

*“Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.”*

Students who have a conflict with any of the scheduled exam times due to religious reasons must notify Dr. Friedrich in writing by class time on **January 15<sup>th</sup>**. Accommodations will not be provided unless he is notified in writing by this date.

**Final exam time conflict university policy**

( <http://reg.wayne.edu/students/exams.php> )

*“Students are not required to take more than two exams in one day. A student with more than two scheduled final exams on one day may (not must) petition to the instructor of the course with the lowest number students enrolled, to arrange an alternate time for the final exam. **Such petitions must be made at least one week prior to the scheduled date of the final exam.**”*

*“In situations where conflicts exist between the regular day schedule and the group exam schedule, the group exam takes precedence. If there is a conflict among the regular schedule, group exam and evening schedule, the group exam takes precedence. The instructor with the fewest students in the remaining two classes will offer alternate arrangements to students.”*

Note: Our class currently has ~210 students.

*“Any student unable to take a final exam at the scheduled time due to religious convictions shall petition the instructor in advance of the final exam to arrange an alternate time.”*

**LECTURE EXAM LOCATION, REGULATIONS, AND FORMATS**

- All exams are held in 0146 DeRoy.
- You **MUST** bring your student ID (OneCard) to the exam.
- Scantrons are provided at the exam.
- Exams begin promptly at 9:30 am and end at 10:20 am.
- Students will not be able to leave and re-enter the room once the exam begins for any reason (including bathroom breaks). **Important: You will not be allowed to begin the exam once the first student has finished the exam and left the classroom.**

There will be **4 midterm exams** and **1 cumulative final exam**:

- The maximum possible points achievable through both the 4 midterm exams and the final exam is 700
- Each of the 4 midterm exams will consist of 35 true/false or multiple choice questions and count 150 points, totalling a possible 600 points
- The final exam is cumulative. i.e. cover material presented in the entire course, and will consist of 50 true/false or multiple choice questions:
  - The final exam will count 100 points if its adjusted percentage score is LOWER than one of the 4 midterm exams
  - The final exam will count for 250 points and replace the lowest scored midterm exam if its adjusted percentage score is HIGHER than one of the 4 midterm exams

**FINAL COMBINED LECTURE AND LAB GRADING**

A maximum of 1,000 points can be earned in this course: 700 from lecture exams and 300 from the laboratory. **There is no opportunity for extra credit or alternate assignments under any circumstances.** Under this scheme, each midterm lecture exam is worth 17.5% of your final grade and your lab grade is 30% of your grade. Course grades are determined from total point accumulation (lecture + lab) at the end of the semester, with letter grades assigned based on the following scale (1,000 possible points):

929.5 or more	A	799.5 – 829.49	B-	669.5 – 699.49	D+
899.5 – 929.49	A-	769.5 – 799.49	C+	629.5 – 669.49	D
869.5 – 899.49	B+	729.5 – 769.49	C	599.5 – 629.49	D-
829.5 – 869.49	B	699.5 – 729.49	C-	599.49 or less	F

This grading scale may be modified if appropriate depending on the class average and point distribution.

### **EXAM GRADE DISPUTES/CHALLENGE OPTION**

Students will have one week after the return of an exam or a written assignment to challenge a grade for any question. Failure to challenge the grade within this period indicates a willingness to accept the grade as is. The challenge should consist of a written description of why the answer is correct based on published material that you cite.

### **CHEATING POLICY**

Students found to be cheating during an exam (using a “cheat sheet”, looking at another’s paper, or allowing another to look at yours), will receive a zero for that test with no opportunity to drop or replace that score. A second episode of cheating will result in a grade of F for the course and may also result in initiation of university disciplinary action.

No electronic devices (cell phones, smart phones, smart watches, iPods, iPads, computers, cameras, calculators, etc.) are to be in sight or on during an exam. If they are, they will be confiscated until the exam is completed. Students using such devices to cheat on an exam will receive a zero on the exam.

**In short, don’t cheat.** It rarely helps you with your final course grade and the consequences are simply not worth the risk. Be aware that cheating is a very personal and disrespectful insult to me, your TA and your classmates, and I will show no leniency in how it is handled.

For discussions of cheating and plagiarism see below and/or see the “Student Code of Conduct” that can be found at <http://www.doso.wayne.edu/student-conduct-services.html>.

**Academic Dishonesty - Plagiarism and Cheating (from DOSO website)** “*Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (<http://www.doso.wayne.edu/student-conduct-services.html>). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or*

other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.”

- **“Cheating:** Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.”
- **“Fabrication:** Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.”
- **“Plagiarism:** To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.”
- **“Other forms of academic misbehavior include, but are not limited to:** (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.”

### **COURSE DROPS AND WITHDRAWALS (<http://reg.wayne.edu>)**

“In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Academica. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at” <http://reg.wayne.edu>.

#### **Important deadlines:**

- Students can enroll in this class through Academica up through **January 18th**. Note that students cannot be added to closed labs, so please don’t ask.
- If a student drops this class by **January 18th**, the tuition for this class will be cancelled and the student will be reimbursed. In addition, this class will not show on his/her transcript.
- Withdrawals must be requested through Academica and cannot be granted after **March 24th**. If a student signs up for this class, stops attending and fails to withdraw, he/she will receive a grade of F for the course. Please note that “incomplete” grades will not be issued to students in poor standing who are seeking an alternative to a late drop.

### **HONORS SECTION**

If you enroll in the honors section of this course, you will not be allowed to transfer to the non-honors section after two weeks following the start of the semester. If you are unable to complete the work for the honors section during the semester, you will be given the grade of Incomplete in the class. You will have one year to finish the work and change your grade from incomplete to a letter grade. Failure to complete the honors section work in the one year period will result in a change from an incomplete to an F for the course.

### **STUDENT DISABILITIES SERVICES ( <http://studentdisability.wayne.edu/> )**

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-202-4216 for videophone use. Once you have met with your disability specialist, I will be glad to meet with you privately during my office hours to discuss your accommodations. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. You can learn more about the disability office at [www.studentdisability.wayne.edu](http://www.studentdisability.wayne.edu).

To register with Student Disability Services, complete the online registration form at: [https://wayne-accommodate.symplicity.com/public\\_accommodation/](https://wayne-accommodate.symplicity.com/public_accommodation/)

### **UNEXPECTED UNIVERSITY CLOSURES**

If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms:

- The University Newslines - (313) 577-5345\*
- WSU Homepage ([www.wayne.edu](http://www.wayne.edu))\*
- WSU Academica \*
- WDET-FM (Public Radio 101.9)
- Other local radio and television stations.

\* Note: The information on closures and class cancellations is likely to be found at these locations before local radio and television stations broadcast it.

### **OTHER**

Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University "Student Due Process".