

## BIOL 141: Biology II Laboratory – Syllabus, Spring 2020

**Overview.** Welcome to BIOL 141. This course continues the objectives of BIOL 131, which are to introduce investigative techniques in biology and to promote the development of skills required for the analysis and presentation of scientific findings. This semester will emphasize topics at the level of organisms and above.

BIOL 141 is a co-requisite laboratory course for BIOL 140 and must be taken concurrently with Bio 140 (Biology II lecture). These courses both aim to increase your understanding of organismal biology; they share a common topic, but each has a different course content and approach. Therefore you should think of this lab as a separate course with its own learning objectives, assignments, and purpose.

BIOL 140 and 141, combined with BIOL 130 and 131, make up our core introductory biology curriculum. Students who successfully complete all four of these courses will have the appropriate prerequisites for taking any of the upper-level Biology courses offered at Rhodes.

**Lab meeting times and locations.** (Indicate your own lab section for future reference.)

CRN	Sect.	Day	Room	Time	Instructor
20396	L1	Tues	FJ-183	12:30-3:30pm	Collins
20397	L2	Tues	FJ-185	12:30-3:30pm	Laport
20398	L3	Tues	FJ-183	4-7pm	Ng
20399	L4	Wed	FJ-183	1-4pm	Boyle
20400	L5	Wed	FJ-185	1-4pm	Lindquester
20401	L6	Thurs	FJ-185	12:30-3:30pm	Laport
20402	L7	Thurs	FJ-183	12:30-3:30pm	Fitz Gerald
20403	L8	Thurs	FJ-183	4-7pm	Saunders

**Course instructors and staff.** (Indicate your own professor for future reference.)

Professor or lab manager	Email & phone	Office & Office Hours
Dr. Sarah Boyle	<a href="mailto:boyles@rhodes.edu">boyles@rhodes.edu</a> , x3268	RT-204: M 12-2, Th 3-4, and by appt.
Dr. Michael Collins	<a href="mailto:collinsm@rhodes.edu">collinsm@rhodes.edu</a> , x3557	RT-203: By appt.
Dr. Jonathan Fitz Gerald	<a href="mailto:fitzgeraldj@rhodes.edu">fitzgeraldj@rhodes.edu</a> , x	FJ-158: M 2-4 and by appt.
Dr. Robert Laport	<a href="mailto:laportr@rhodes.edu">laportr@rhodes.edu</a> , x3558	FJ-172: TR 3:30-4:40 or by appt.
Dr. Gary Lindquester	<a href="mailto:glindquester@rhodes.edu">glindquester@rhodes.edu</a> ,	ROBT-153: By appt.
Dr. Julienne Ng	<a href="mailto:ngj@rhodes.edu">ngj@rhodes.edu</a> ,	FJ-178: By appt.
Dr. Lyndsay Saunders	<a href="mailto:lesaunde@memphis.edu">lesaunde@memphis.edu</a>	FJ-178: By appt.
Mrs. Sarah Hasty	<a href="mailto:hastys@rhodes.edu">hastys@rhodes.edu</a> , x3431	FJ-157: By appt.
Mr. Justin Porter	<a href="mailto:porterj@rhodes.edu">porterj@rhodes.edu</a> , x3004	ROBT-013: By appt.

**Access to laboratory materials.** All course-related materials will be posted on Moodle, including your grades. Links for protocols, assignments, etc. will become available as they are required. It is your responsibility to **check your Moodle account regularly**. Similarly, your instructor and lab administrator will routinely communicate with you through your Rhodes email account. Please **check your Rhodes email daily**. It is your responsibility to **print and bring your lab handouts or bring your laptop/tablet with access to the handouts** with you to lab each week; copies will not be provided. Note that some activities may be very messy (e.g., pig dissection) so you may not want to use electronic lab handouts for those labs. Moodle Resource: <http://moodle.rhodes.edu/course/view.php?id=13352>.

**Laboratory Safety.** You must wear enclosed shoes and bring safety glasses to all labs. Laboratory safety procedures must be followed throughout the semester. Laboratory safety documentation may be found on the course Moodle page.

**Learning objectives.** Students who complete Bio 141 will ...

- gain a basic understanding of:
  - evolutionary relationships and the diversity of adaptations among living organisms.
  - basic processes and stages of vertebrate development.
- learn laboratory and field techniques used by biologists to study organisms.
- develop the specific investigative skills used by biologists by applying the scientific method to the study of animal and plant development, growth, and physiology; animal behavior; and ecology.
- learn appropriate methods for collecting data and for statistical analyses and interpretation of data.
- acquire skills in working with others as part of a collaborative group.

**Honor Code.** All conduct and work conducted in this course must adhere to the Rhodes College Honor Code, which prohibits plagiarism, cheating, manipulation or fabrication of data, etc. This system is critical to maintaining the Rhodes Community, and we must all be diligent in our responsibilities.

- You are not to seek out, glance at, or use past versions of assignments, papers, or quizzes archived by other students. You are not to provide access to your own work or information about quizzes or assignments to future or current BIOL 141 students.
- You are not to fabricate data and analyze it as your own.
- If you are unsure of whether an assignment is for group or individual work, ask your professor. As a default, assume that it is individual work.
- You must become familiar with how to properly cite scientific sources—plagiarism is a violation of the Honor Code. It is the students' responsibility to fully understand what plagiarism is and the consequences of committing plagiarism under the Rhodes Honor system.
- Please discuss with your professor any questions you have. For more information on the Rhodes honor code system go to <http://www.rhodes.edu/content/honor-council>.

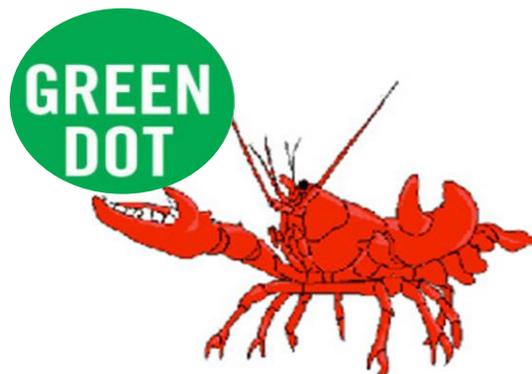
**Accommodations.** In accordance with the provisions of Section 504 of the Rehabilitation Act of 1973, and expanded by Title III of the Americans with Disabilities Act of 1990 (ADA), our Office of Student Accessibility Services (SAS) offers assistance to students in the form of accommodations, advising and referral services on a case-by-case basis for otherwise qualified students who have demonstrated a need for these services. The SAS is located on the fourth floor of Burrow Hall, x3885. **If you need special accommodations of any kind, it is your responsibility to contact your instructor during the first week of lab** and provide your documentation from SAS.

**Sexual Misconduct Disclosure.** We will all do our best to help any student who comes to us with non-course related concerns. Please keep in mind, however, that all faculty members are mandated to report any incidents of sexual misconduct that comes to their attention. This includes, but is not limited to, sexual assault, dating/domestic violence, sexual exploitation, stalking, sexual harassment and sex/gender discrimination. Mandatory reporting means that we cannot keep information about sexual misconduct confidential from the college if you share it with us, but the college has specific confidentiality and anti-retaliation protections in place. The Rhodes Counseling Center, the Chaplain, or the Student Health Services Staff can advise you confidentially. Also, the Title IX Coordinator can help

you access other resources on campus and in the local community. For more information about Rhodes' sexual misconduct policy or to make a report please see [www.rhodes.edu/titleix](http://www.rhodes.edu/titleix).

### What's Your Green Dot?

A green dot represents any moment, big or small, that either directly or indirectly helps reduce the prevalence of violence on campus.



**Classroom Climate.** Every perspective is important. The Biology Department is committed to creating an academic climate that is safe and respectful of all students, staff, and faculty regardless of race, ethnicity, sexual orientation, gender identity, age, size, socioeconomic background, religion, spirituality, physical ability, mental ability, or any other aspect of one's identity. A climate of mutual respect allows us to ask difficult questions and to participate in honest discussions, even in the context of strong disagreement. Creating this kind of open, honest, and respectful climate is our mutual responsibility. For more information go to <http://www.rhodes.edu/content/rhodes-vision>.

**Cell phones/Computers/Tablets:** Please silence your cell phones while in lab. There will be absolutely no texting while in lab, and phones should be stored out of sight unless they are being used for the lab activity (e.g. as timers or calculators). When you leave the room to take the lab practical quizzes, your cell phone must be left behind in the lab with the rest of your belongings. You are welcome to use electronic devices (computers/tablets) for reference to PowerPoint presentations and note taking. However, you must refrain from surfing the web, reading email, and other non-course-related activities as these activities are distracting to the instructor and those around you.

**Attendance.** A laboratory is a practical experience, so **attendance is required.**

- **Each unexcused absence from lab will result in an automatic 5% reduction in your final grade,** in addition to the negative effect it will have on quizzes and assignments. Your final grade may also be lowered if you are chronically late to lab.
- If there are ***extenuating circumstances*** or if you need to miss lab for ***College-approved reasons***, you should notify your lab instructor as soon as possible. In these cases, students may be able to attend a different lab section, but only with **advance permission** from **both** the regular professor and the professor whose section the student can attend. **Athletes and others with set travel schedules should speak to their professors about anticipated absences before the end of the first full week of classes.**

**ASSESSMENT:**

**Grading.** Your grade will be based upon your performance on both group and individual assignments, including worksheets that you will complete both in and outside of lab, and a group project at the end of the semester culminating in a poster presentation at our undergraduate research day, the Rhodes Symposium.

All assignments are due on the dates given in the syllabus. Other assignments and due dates may be given in class. **If an assignment is turned in late, but within 24 hours of the deadline, 10% will be deducted from the grade earned. After 24 hours, the assignment will receive a grade of 0.** All assignments and lab activities are bound under the Honor Code, which prohibits plagiarism, cheating, manipulation or fabrication of data, etc.

Assignment	points
Microscopy Tutorial and Quiz	5
Methods of Scientific Research worksheet	10
Diversity Worksheet (group)	20
Lab Practical Quiz #1 - Diversity	20
Stomata Density write-up	10
Stomata Physiology write-up	10
Lab Practical Quiz #2 - Pig Anatomy & Physiology	20
<i>Daphnia</i> Heart Rate write-up	20
Behavior worksheet	10
Behavior write-up (group)	10
Lab Practical Quiz #3 - Embryology	10
Embryology presentation (group)	10
Embryology presentation evaluations & assignments (3 PPT evals, 1 peer eval, 2 entrance tickets)	6
Embryology X-Y scatterplot	10
Tree Carbon worksheet	10
Ecology worksheet	10
Rhodes Symposium Research Presentation (group)	
Proposal (initial & accepted versions; 4 points each)	8
Poster version 1 (Title/header, intro, methods, refs)	15
Poster version 2 (all sections done)	15
Poster final version	30
Symposium attendance and engagement	8
Total	267

**Final grades** will be based on the following standard grading scale:

	87% ≤ B+ <90%	77% ≤ C+ <80%	67% ≤ D+ <70%	F <60%
93% ≤ A	83% ≤ B <87%	73% ≤ C <77%	63% ≤ D <67%	
90% ≤ A- <93%	80% ≤ B- <83%	70% ≤ C- <73%	60% ≤ D- <63%	

## Course Schedule

Week: Dates	Lab Activities	Lab Practical Quizzes and Items Due
0: Jan 15-20 Two prelab assignments	<b>MICROSCOPY</b> – Moodle Tutorial and quiz; <b>SCIENTIFIC METHOD</b> – Moodle PPT file	Complete <b>Moodle microscopy tutorial &amp; quiz</b> in one of the lab rooms (FJ 183 or 185) by 2pm on Monday, January 20 (This is MLK day; no one will be in labs to help)
1: Jan 21-23	<b>DIVERSITY</b> Lab	1. <b>Scientific Methods worksheet</b> due by noon before lab 2. Bring your lab handout, plus text or laptop to lab 3. <b>Diversity worksheet</b> due by end of lab
2: Jan 28-30	<b>PLANT A&amp;P</b> – Testing hypotheses about Stomatal Density and Physiology	1. <b>Stomata Density write-up</b> due by end of lab 2. Bring your laptop to lab
3: Feb 4-6	<b>MAMMALIAN A&amp;P</b> – Fetal Pig Dissection	1. Bring text and wear long pants to lab 2. <b>Lab Practical Quiz #1 – Diversity</b>
4: Feb 11-13	<b>MAMMALIAN A&amp;P</b> continued	1. <b>Stomatal Aperture write-up</b> due by noon before lab 2. Bring text and wear long pants to lab
5: Feb 18-20	<b>DAPHNIA</b> Heart Rate	1. <b>Lab Practical Quiz #2 – Fetal Pig A&amp;P</b>
6: Feb 25-27	<b>CRAYFISH BEHAVIOR</b>	1. <b>Daphnia heart rate write-up</b> due by noon of lab day 2. <b>Behavior worksheet</b> due by end of lab 3. Group <b>Behavior write-up</b> due on Moodle by 10 PM 4. Get instructor's approval for proposals during lab
7: Mar 3-5	<b>PROPOSAL REVIEW</b> (group meetings with instructor)	1. <b>Proposal for group projects</b> due on Moodle by noon of the day <b>BEFORE</b> lab 2. Plant seeds or prepare plants for long term projects
8: Mar 10-12	<b>Spring Break</b>	<b>No labs meet</b>
9: Mar 17-19	<b>AMPHIB. DEVELOPMENT</b> – Data analysis <b>GROUP EXPERIMENTS</b>	1. <b>Revised proposal must be approved by noon before lab</b> 2. Bring your laptop to lab
10: Mar 24-26	<b>AMPHIB. DEVELOPMENT</b> – Data Analysis, PowerPoint <b>GROUP EXP.</b> continued	1. <b>Lab Practical Quiz #3 - Animal Embryology</b> 2. Entrance ticket (ANOVA and SNK results, and graph) 3. Bring your laptop to lab 4. <b>Amphib. Dev. group PPT presentation</b> in lab
11: Mar 31- Apr 2	<b>GROUP EXP.</b> continued	1. <b>X-Y scatterplot assignment</b> due by noon on Tuesday March 31 2. Electronic version of <b>research poster</b> V.1 with <b>Title/Header, Introduction, Methods and Lit. Cited</b> due by <b>noon of Friday, April 3</b> for all lab sections.
12: Apr 7-9	<b>GROUP EXP.</b> continued	<b>Easter break: Apr 9-12 No Labs meet</b>
13: Apr 14-16	<b>GROUP EXP.</b> continued - work on posters	Electronic version of <b>research poster</b> (V.2) in final format is due by <b>noon of Friday, April 17</b> for all lab sections
14: Apr 21-23	<b>TREE CARBON &amp; REVIEW OF POSTERS</b>	<b>Tree Carbon worksheet</b> due by end of lab
15: Apr 28-30	<b>ECOLOGY LAB</b>	Revised electronic version of <b>research poster</b> (V.3) is due by <b>noon of Monday, April 27</b>
**Fri, May 1**	<b>RHODES SYMPOSIUM</b>	1. <b>Poster presentations</b> at Rhodes Symposium 2. <b>Ecology write-up</b> is due by noon for all lab sections