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# BIOLOGY 1114

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Introduction to Zoology with Dr. Tarren J Shaw

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## Becoming a Biologist

This might be your first biology course, or your last. Perhaps you're a biology major, or simply taking this course for a gen-ed requirement. Regardless, we want you to think like a scientist by applying information and developing critical thinking skills. And we want you to think like a biologist by using evolution to explain it all; from the inner-workings of a single cell, to the diversity of life of Earth.

This course will combine mini-lectures, discussions, individual and group activities, multimedia presentations, and demonstrations to give you the opportunity to learn biological concepts in as active a manner as possible. Each segment of the course is structured around one or more scenarios - case studies or story lines - that can be interpreted or solved by applying selected biological concepts.

### What will I learn?

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This course introduces students to the integration between structure and function among all levels of biological organization. You will learn to apply principles of evolution, genetics, physiology and ecology to understand the integrated and interdependent nature of living systems through discussions and assignments that emphasize the process of science.

**Biology is the science.  
Evolution is the concept  
that makes biology unique.**

**-Jared Diamond**

## Instructors



**Dr. Tarren J Shaw**

Office: 405 Richards Hall

Office Hours: Wed, Thurs, 2 to 4 PM;

ActionCenter: Monday, 4:30 to 6:30PM

Email: [tjshaw@ou.edu](mailto:tjshaw@ou.edu)



**Shannon Reeves**

Graduate Teaching Assistant

Office: 208 Richards Hall Office

Hours: Monday, 1 to 3 PM

Email: [shanreeves@ou.edu](mailto:shanreeves@ou.edu)

## How can I meet with my instructor?

Both Shannon and I keep regular office hours (see sidebar, left) and may be available for consultations outside of this time. Additionally, I will be available in our weekly Action Center. I enjoy meeting students and prefer face-to-face conversations. We don't even have to talk about biology! You do not need an appointment to visit during office hours. However, I'll be happy to make appointments for visits outside of office hours. If you have a question regarding a missed class, assignments, readings, or grades, please email Shannon.

**If you have issues with CANVAS please use the Canvas HELP menu or contact Canvas Support Hotline: 405-325-HELP**

## What will I need for class?

We will be using a text packaged with the on-line learning software "Connect PLUS."

1. **Biology: Concepts and Investigations** by Mariëlle Hoefnagels, 4th edition, McGraw-Hill. This is a custom text for BIOL 1114 that is bundled with the Connect PLUS Access Card. If you have a used text, you will need to BUY the Connect PLUS access card.
2. **TopHat software:** used for participating in in-class quizzes and brain-storming activities. Purchase at the bookstore, or online from [TopHat.com](http://TopHat.com). A 4 mo subscription is about \$25.

## How will I be graded?

There are many different types of assignments that you will complete during the semester. See the table below:

| Assessment Component     | Category Weight |
|--------------------------|-----------------|
| LearnSmart Homework (LS) | 10%             |
| Top Hat Pop Quizzes (PQ) | 10%             |
| Case Studies (CS)        | 15%             |
| Weekly Quizzes (WQ)      | 15%             |
| Unit Exams               | 30%             |
| Final Exam               | 20%             |
| Course Total             | 100%            |

Grades will be assigned based on the following scale: A = 90% and greater; B = 80%-89%; C = 70% -79%; D = 60%-69%; F = 59% and less.

## Assessment types

**Unit Exams:** To emphasize critical thinking and concept application, all exams are cumulative and consist of multiple choice questions that pertain to selected readings and scenarios. The readings will provide information from which you can make predictions, analyze data, and apply information. Several study aids and exam resources are provided so that you can check your skill development as the semester progresses.



**Weekly Quizzes:** To prepare you for exams and ensure that you are keeping up with class material, weekly Quizzes will be assigned. These quizzes will be completed using the Connect software and are due every Wednesday by 11:59 PM.

**Pop-quizzes:** There will be many informal pop-quizzes throughout the semester. They will happen almost every class period, and are designed to help you better understand course concepts. We will discuss the correct answers during class so that you will have a self-assessment. We will take these quizzes using the *TopHat* system. It is your responsibility to register your device and participate each day.

**LearnSmart Homework:** The LearnSmart software available via Connect will help you master basic course concepts and will make suggestions for readings and study habits. These assignments are due weekly on Monday by 11:59 PM

**Case studies:** I want you to have multiple opportunities to solve new problems and apply course information. Case studies will allow you to apply class info to “real-world” issues while working with a group.

## Course & University Policies

### I missed an exam or assignment, now what do I do?

**Late work is not accepted in this course and there are no “make-up” exams or alternate assignments.** Student absences are inevitable, but are accommodated in the following ways:

- More PQ points are offered than used for calculating your course grade.
- The lowest grade for LS, WQ, and CS assignments are dropped.

## **Your lowest unit exam grade will be dropped at the end of the semester.**

If you are ill or dealing with a family emergency you should not have to worry about taking an exam. If you are ill and you still show up to take the exam, you may be asked to turn in your exam and leave if we think you are endangering or disturbing those around you. **If you miss the Final Exam** and notify me within 24 hours, the grade of “I” (Incomplete) will be assigned if you are currently passing the course. You may remove the “I” by taking the final exam in following semesters, i.e., in spring or summer 2019.

## **Academic Misconduct:**

Academic misconduct includes cheating, plagiarism, falsification of records, unauthorized possession of examinations, intimidation, and any other action that may improperly affect the evaluation of your performance. It also includes assisting others in any such act or attempts to engage in such acts.

Penalties may include grade penalties and disciplinary action from the University’s Academic Misconduct Board.

For more on academic integrity and misconduct, and the OU Integrity Council, visit [Academic Integrity](#).

## **Mental Health Support Services**

Support is available for any student experiencing mental health issues that are impacting their academic success. Students can either be seen at the University Counseling Center (UCC) located on the second floor of Goddard Health Center or receive 24/7/365 crisis support from a licensed mental health provider through [TELUS](#) Health. To schedule an appointment or receive more information about mental health resources at OU please call the UCC at 405-325-2911 or visit [University Counseling Center](#). The UCC is located at 620 Elm Ave., Room 201, Norman, OK 73019.

## **Title IX Resources and Reporting Requirement**

The University of Oklahoma faculty are committed to creating a safe learning environment for all members of our community, free from gender and sex-based discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking, in accordance with Title IX. There are resources available to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you have (or someone you know has) experienced any form of sex or gender-based discrimination or violence and wish to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or [University Counseling Center](#) (M-F 8 a.m. to 5 p.m. at 405-325-2911)

Because the University of Oklahoma is committed to the safety of you and other students, and because of our Title IX obligations, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report

gender-based violence that has been disclosed to us to the Institutional Equity Office. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. You may also choose to report directly to the Institutional Equity Office. After a report is filed, the Title IX Coordinator will reach out to provide resources, support, and information and the reported information will remain private. For more information regarding the University's Title IX Grievance procedures, reporting, or support measures, please visit [Institutional Equity Office](#) at 405-325-3546.

## **Reasonable Accommodation Policy**

The University of Oklahoma (OU) is committed to the goal of achieving equal educational opportunity and full educational participation for students with disabilities. If you have already established reasonable accommodations with the Accessibility and Disability Resource Center (ADRC), please [submit your semester accommodation request through the ADRC](#) as soon as possible and contact me privately, so that we have adequate time to arrange your approved academic accommodations.

If you have not yet established services through ADRC, but have a documented disability and require accommodations, please complete [ADRC's pre-registration form](#) to begin the registration process. ADRC facilitates the interactive process that establishes reasonable accommodations for students at OU. For more information on ADRC registration procedures, please review their [Register with the ADRC](#) web page. You may also contact them at (405)325-3852 or [adrc@ou.edu](mailto:adrc@ou.edu), or visit [www.ou.edu/adrc](http://www.ou.edu/adrc) for more information.

Note: disabilities may include, but are not limited to, mental health, chronic health, physical, vision, hearing, learning and attention disabilities, pregnancy-related. ADRC can also support students experiencing temporary medical conditions.

## **Religious Observance**

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

[\[See Faculty Handbook 3.15.2\]](#)

## **Adjustments for Pregnancy and Related Issues**

Should you need modifications or adjustments to your course requirements because of pregnancy or a pregnancy-related condition, please request modifications via the [Institutional Equity Office website](#) or call the Institutional Equity Office at 405/325-3546 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions.



## Final Exam Period

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's [Final Exam Preparation Period policy](#).

## Emergency Protocol (required)

During an emergency, there are official university [procedures](#) that will maximize your safety.

**Severe Weather:** If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather.

1. Look for severe weather refuge location maps located inside most OU buildings near the entrances.
2. Seek refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. Go to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. Get in, Get Down, Cover Up
5. Wait for official notice to resume normal activities.

Additional [Weather Safety Information](#) is available through the Department of Campus Safety.

## The University of Oklahoma Active Threat Guidance (required)

The University of Oklahoma embraces a Run, Hide, Fight strategy for active threats on campus. This strategy is well known, widely accepted, and proven to save lives. To receive emergency campus alerts, be sure to update your contact information and preferences in the account settings section at [one.ou.edu](http://one.ou.edu).

**RUN:** Running away from the threat is usually the best option. If it is safe to run, run as far away from the threat as possible. Call 911 when you are in a safe location and let them know from which OU campus you're calling from and location of active threat.

**HIDE:** If running is not practical, the next best option is to hide. Lock and barricade all doors; turn off all lights; turn down your phone's volume; search for improvised weapons; hide behind solid objects and walls; and hide yourself completely and stay quiet. Remain in place until law enforcement arrives. Be patient and remain hidden.

**FIGHT:** If you are unable to run or hide, the last best option is to fight. Have one or more improvised weapons with you and be prepared to attack. Attack them when they are least expecting it and hit them where it hurts most: the face (specifically eyes, nose, and ears), the throat, the diaphragm (solar plexus), and the groin.

*Please save OUPD's contact information in your phone.*

**NORMAN** campus: *For non-emergencies call (405) 325-1717. For emergencies call (405) 325-1911 or dial 911.*

**TULSA** campus: *For non-emergencies call (918) 660-3900. For emergencies call (918) 660-3333 or dial 911.*

## Fire Alarm/General Emergency: (required)

If you receive an OU Alert that there is danger inside or near the building, or the fire alarm inside the building activates:

1. *LEAVE* the building. Do not use the elevators.
2. *KNOW* at least two building exits
3. *ASSIST* those that may need help
4. *PROCEED* to the emergency assembly area
5. *ONCE safely outside, NOTIFY first responders of anyone that may still be inside building due to mobility issues.*
6. *WAIT* for official notice before attempting to re-enter the building.

[OU Fire Safety on Campus](#)

### **Need some help?**

The Zoology Aide Program (ZAP) is a free tutoring service offered by the Department of Biology and staffed by talented students. The tutoring schedule of the Zappers will be displayed in class and posted outside the ZAP room (165 Richards Hall).

## Common Themes

I. **"Scientific Method"** or your ability to state a hypothesis, design an experiment and interpret data.

II. **Genetics.** The ability of living things (i.e. cells) to store genetic information so that future generations inherit the traits necessary for survival and reproduction. You should recognize how genes can change, and what effect this might have.

III. **Gradients.** Living things respond to differences (gradients) in concentrations of water, salts, etc. as it is crucial for survival. How are gradients created in each instance? What occurs when the gradient is present or absent?

IV. **Chemical Reactions.** You need to know the rules that apply to energy and its transfer. You need to predict and explain and how atoms and/or molecules interact, and how this help shapes our understanding of life.

V. **Protein structure and function, and their use in membranes.** You need to know what effect changing a protein's shape has on the protein and what controls this change. What functions do proteins serve when they are positioned in membranes? How are these functions achieved?

VI. **Evolution.** You need to understand how this process leads to all of the adaptations (genetics) we discuss, as well as understand its action and result in every scenario. You need to know how fitness is involved, and understand and identify trade-offs in the costs and benefits that exist in every adaptation,

structure or function.

VII. **Homeostasis.** The tendency to maintain a constant internal environment between limits, and return things to normal dictates what living systems do. You need to recognize where that happens in our discussions.

VIII. **Metabolism.** Chemical and energy transformations appear in several scenarios and are an essential characteristic of all living things. You need to know where and when this is applied and discussed. You need to understand the metabolic processes we discuss.

IX. **Inputs and Outputs.** This is not a principle, but it is a recurring theme in our discussions. You need to know what is the result or product of some certain processes or reactions. You need to know what are the starting ingredients, conditions, or reactants when a process occurs.

X. **Interfering with the System.** This too is a recurring theme in our discussions - what would happen if some system or process were broken or blocked? What would not happen?

**Nothing in Biology makes sense except in the light of evolution.**

**- Theodosius Dobzhansky**



## Biology 1114 Fall 2018 Schedule<sup>1</sup>

Note: Each week has a series of readings. These are listed for each week in the row for Thursday. Some cells, therefore, are intentionally left blank.

| Date | Day      | Topics  | Assigned Readings (Chapters)   | Assignment Due     | Points     |
|------|----------|---|--|--------------------|------------|
| 8/21 | Tuesday  | Introduction to Biology 1114                  |  | LearnSmart 1       | 10         |
| 8/23 | Thursday | Characterizing Life, Applying science         | Readings for 8/21 through 8/23: 1.1, 1.2, 1.3, 1.4                                       | Weekly Quiz 1      | 10         |
| 8/24 | Friday   | Characterizing Life, Applying science         |  |                    |            |
| 8/28 | Tuesday  | Basic Chemistry, Chemical Bonds, Water & Life |  | LearnSmart 2       | 10         |
| 8/30 | Thursday | Basic Chemistry, Chemical Bonds, Water & Life | Readings for 8/28 through 9/31: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 15.1                       | Weekly Quiz 2      | 10         |
| 9/31 | Friday   | Case Study 1-"Rough Games"                    |  | Case Study         | 20         |
| 9/4  | Tuesday  | Survival in Harsh Habitats - Thermoregulation |  | LearnSmart 3       | 10         |
| 9/6  | Thursday | The importance of gradients                   | Readings for 9/4 through 9/7: 3.1D, 3.2, 3.3, 4, 33.1, 33.2                              | Weekly Quiz 3      | 10         |
| 9/7  | Friday   | Case Study 2 -"Frozen"                        |  | Case Study         | 20         |
| 9/11 | Tuesday  | Membrane Transport/Cellular Respiration       |  | LearnSmart 4       | 10         |
| 9/13 | Thursday | Cellular Respiration/ Natural Selection       | Readings for 9/11 through 9/14: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.10, 12.1, 12.3 | Weekly Quiz 4      | 10         |
| 9/14 | Friday   | Case Study 3 - "The Mystery of the 7 Deaths"  |  | Case Study         | 20         |
| 9/18 | Tuesday  | <b>Exam 1</b>                                 |  | <b>EXAM 1; LS5</b> | <b>100</b> |
| 9/20 | Thursday | Cellular communication: Neurons               | Readings for 9/20 through 9/21: 3.4, 3.5, 26.2, 26.3, 26.4, 26.7                         | Weekly Quiz 5      | 10         |
| 9/21 | Friday   | Cell membranes, organelles, and signals       |  |                    |            |
| 9/25 | Tuesday  | Neurons and Senses                            |  | LearnSmart 6       | 10         |
| 9/27 | Thursday | Neurons and Senses                            | Readings for 9/25 through 9/28: 4.6, 27.1, 27.2, 27.3, 27.4                              | Weekly Quiz 6      | 10         |
| 9/28 | Friday   | Case Study 4 - "The Deadliest Catch"          |  | Case Study         | 20         |

<sup>1</sup> \*This schedule may be modified during the semester. Updates will be posted to our Canvas page.

| Date  | Day      | Topics                              | Assigned Readings (Chapters)   | Assignment Due     | Points     |
|-------|----------|-------------------------------------|--|--------------------|------------|
| 10/2  | Tuesday  | Emerging Diseases and Immunity      | Readings for 10/2 through 10/5: 16.1, 16.4, 16.7, 17.1, 17.4, 17.5, 34.1, 34.2, 34.3, 34.4, 34.5, 34.6                   | LearnSmart 7       | 10         |
| 10/4  | Thursday | Emerging Diseases and Immunity      |  | Weekly Quiz 7      | 10         |
| 10/5  | Friday   | Fall Break - No Class               |  | Case Study         | 20         |
| 10/9  | Tuesday  | DNA: Transcription and Translation  | Readings for 10/9 through 10/12: 7.2, 7.3, 7.4, 7.5, 7.7, 7.8 27.6   | LearnSmart 8       | 10         |
| 10/11 | Thursday | DNA: Transcription and Translation  |  | Weekly Quiz 8      | 10         |
| 10/12 | Friday   | Case Study 5 - "Perfect Strain"     |  |                    |            |
| 10/16 | Tuesday  | <b>Exam 2</b>                       |  | <b>Exam 2; LS9</b> | <b>100</b> |
| 10/18 | Thursday | Genetics/Cell Growth/Cancer         | Readings for 10/18 through 10/19: 8.1, 8.2, 8.4, 8.5, 8.6, 8.7, 8.8  | Weekly Quiz 9      | 10         |
| 10/19 | Friday   | Genetics/Cell Growth/Cancer         |  |                    |            |
| 10/23 | Tuesday  | Genetics/Cell Growth/Cancer         | Readings for 10/23 through 10/26: 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9 | LearnSmart 10      | 10         |
| 10/25 | Thursday | Genetics/Cell Growth/Cancer         |  | Weekly Quiz 10     | 10         |
| 10/26 | Friday   | Case Study 6 - "But I'm too young!" |  | Case Study         | 20         |
| 10/30 | Tuesday  | Evolution and Natural Selection     | Readings for 10/30 through 11/2: 12.5, 12.7, 12.8, 14.1, 14.2, 14.3A, 14.4, 25.6   | LearnSmart 11      | 10         |
| 11/1  | Thursday | Evolution and Natural Selection     |  | Weekly Quiz 11     | 10         |
| 11/2  | Friday   | Case Study 7 - "Blood Suckers!"     |  | Case Study         | 20         |
| 11/6  | Tuesday  | Hormones and Obesity                | Readings for 11/6 through 11/9: 25.4, 28.1, 28.2, 28.4, 32.3, 32.4D, 32.5  | LearnSmart 12      | 10         |
| 11/8  | Thursday | Hormones and Obesity                |  | Weekly Quiz 12     | 10         |
| 11/9  | Friday   | Case Study 8 - "Diabetes Epidemic"  |  | Case Study         | 20         |

| Date  | Day      | Topics                                 | Assigned Readings (Chapters)   | Assignment Due        | Points |
|-------|----------|--|--|-----------------------|--------|
| 11/13 | Tuesday  | <b>Exam 3</b>                          |  | <b>Exam 3; LS13</b>   | 100    |
| 11/15 | Thursday | Hormones, Homeostasis, and Development | Readings for 11/15 through 11/16: 28.3, 28.5, 28.6, 33.4, 33.5                   | <i>Weekly Quiz 13</i> | 10     |
| 11/16 | Friday   | Hormones, Homeostasis, and Development |  |                       |        |
| 11/20 | Tuesday  | Case Study 9 - "Chemical Eric"         | No readings  | <i>Case Study</i>     | 20     |
| 11/22 | Thursday | Thanksgiving Holiday - No Class        |  |                       |        |
| 11/23 | Friday   | Thanksgiving Holiday - No Class        |  |                       |        |
| 11/27 | Tuesday  | Mamalian Organ Systems                 | Readings for 11/27 through 11/30: 26.5, 30.1, 30.3, 30.4, 30.5, 30.7, 31.2, 31.4 | <i>LearnSmart 14</i>  | 10     |
| 11/29 | Thursday | Mamalian Organ Systems                 |  | <i>Weekly Quiz 14</i> | 10     |
| 11/30 | Friday   | Case Study 10 - "2000 Meter Row"       |  | <i>Case Study</i>     | 20     |
| 12/4  | Tuesday  | Mamalian Organ Systems                 | Readings for 12/4 through 12/7: 9.8, 12.6 28.5, 35.2, 35.3, 36.4, 36.6           | <i>LearnSmart 15</i>  | 10     |
| 12/6  | Thursday | Mamalian Organ Systems                 |  | <i>Weekly Quiz 15</i> | 10     |
| 12/7  | Friday   | Case Study 11 - "28 Days?"             |  | <i>Case Study</i>     | 20     |
| 12/14 | Friday   | <b>Final Exam 8:00am-10:00am</b>       |  | <b>Final Exam</b>     | 200    |