BSC1005—GENERAL BIOLOGY FOR NON-MAJORS

SEMESTER

LECTURE TIME

LECTURE LOCATION

Faculty Coordinator: Dr. Brittany Kraft
Contact Dr. Kraft: bkraft@bio.fsu.edu; 850-644-6826; 425A MCH Carothers (office)
Dr. Kraft’s Office Hours:
Attendance Coordinator:
Attendance Coordinator’s Office Hours to supply documentation:
Admin:
Course Website: Use the BSC1005 Canvas website to check announcements, view the syllabus and FAQs, view your grades, submit assignments, and access course material.
Teaching Assistants’ Office Hours: Check the schedule under the “Test Sign Up” tab on the Home Page for times. No appointment necessary!

COURSE DESCRIPTION:
This course consists of four units of contemporary biology topics, taught by biology professors/researchers who specialize in the subject matter. Topics vary each semester and may include genetics and human inheritance, vertebrate biology, plant biology, human reproduction, marine biology, dinosaur paleobiology, viruses and viral disease, and ecology. The course emphasizes the development of science proficiency by teaching students to understand, use, and interpret scientific explanations of the natural world and apply this knowledge to social, environmental, political or wellness issues.

LIBERAL STUDIES FOR THE 21st CENTURY:
The Liberal Studies for the 21st Century Program at Florida State University builds an educational foundation that will enable FSU graduates to thrive intellectually and materially and to engage critically and effectively in their communities. In this way your Liberal Studies courses provide a comprehensive intellectual foundation and transformative educational experience.

This course has been approved to meet FSU’s Liberal Studies Natural Sciences requirements and is designed to help you become an effective interpreter of scientific results and a critical analyst of claims about the natural world.

COURSE OBJECTIVES:
By the end of the course, students will demonstrate the ability to:

• Pose questions or hypotheses based on scientific principles. Students will learn about the scientific method and get opportunities to form their own questions and hypotheses about the natural world, as well as learn about questions and hypotheses in different fields of biology.

• Use appropriate scientific methods to evaluate claims or theoretical arguments about the natural world. Students will evaluate claims and arguments in class and through assignments, and use the knowledge they learn in class to develop scientific explanations. Students will also assess claims by biologists in many disciplines and relate them to the course content.

• Analyze and interpret research results using appropriate methods. Student will explore data from published scientific studies and draw conclusions about biology from these findings.
PLEASE NOTE: Three questions (one assessing each competency above) will be included on each of the four unit exams given throughout the semester. The Nature of Science Assignment will also assess student achievement these objectives; details regarding the rubric for this can be found on the course site.

COURSE MATERIALS:
 Required Booklets are written by the course instructors and available at the FSU and Bill’s Bookstores:
Unit 1: Booklet Title, by Faculty Member
Unit 2: Booklet Title, by Faculty Member
Unit 3: Booklet Title, by Faculty Member
Unit 4: Booklet Title, by Faculty Member

Required Instructional Technology: Purchase a new or used iclicker 1, 2 or + to earn credit for responding to in-class conceptual questions. Students may opt out of the extra credit opportunity and choose not to use an iclicker.

COURSE ASSIGNMENTS AND EVALUATION:
BSC1005 consists of 4 units; each is like a mini-course and consists of a unit test (worth 200 points) and a unit assignment (worth 40 points). There is also an assignment on the Nature of Science (worth 40 points) due at the end of the semester. Extra credit opportunities are also available throughout the semester.

UNIT TESTS
a. Tests are taken on a computer at the FSU Assessment and Testing Facility, University Center C Suite 1100 (located at the stadium). Take your valid FSU student ID and arrive before your appointment day and time. See FSU Testing Center Rules on the course website for details.
b. Each unit test is composed of 25 multiple choice questions.
c. Each student has up to two attempts at each unit test. It is highly recommended that students take both attempts, but students are welcome to take only one attempt.
   i. Students are only allowed to take the test once per day.
   ii. Only the highest score between the two attempts is counted.
   iii. If a student misses the first attempt they may complete the second attempt. However, their score will only be based on that second attempt.
d. Each exam is administered to students through Canvas, and students are randomly assigned a subset of questions. It is a violation of FSU’s Academic Honor Policy to discuss any exam questions with other students who have not taken the exam yet.
e. If you have conflicts with the testing window contact Dr. Kraft immediately, with documentation. With permission from Dr. Kraft, tests may be scheduled in 428 Carothers.
f. Students with SDRC accommodations or other testing accommodations should discuss their testing plan with Dr. Kraft prior to the testing window. Students with SDRC testing accommodations are welcome to take the exams at the SDRC testing center.

<table>
<thead>
<tr>
<th>Testing Windows:</th>
<th>First Attempt</th>
<th>Second Attempt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1 –</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Unit 2—</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Unit 3 –</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Test Appointment Sign Up:

a. Navigate to the “Test Sign Up” tab on the Home Page of the course site for detailed instructions and rules regarding appointment sign up. Follow all of these step by step instructions or you may forfeit a chance to take the test.
   a. Click on the Test Appointment Sign Up Link on the course website to use RegisterBlast to schedule appointments for your test days and times. You must have an appointment to be seated at the testing center.
   b. Once you complete your appointment sign-up, an e-mail will be sent with confirmation of your test appointment dates and times.
   c. Read and follow the document labeled “Test Appointment Sign Up Instructions” for details about changing or viewing your appointment times BEFORE the test appointment has taken place.

b. We will send out announcements to remind students about testing windows, but it is the student’s responsibility to register for their attempts early (at least 2 weeks in advance) in order to secure appointment times that work for their schedule.

c. If you have missed a test appointment you were scheduled to take and we are still within our testing window, or for other assistance related to appointment scheduling, contact the testing center staff who work with RegisterBlast and they will try to help; regblast@campus.fsu.edu. (850) 644-3018 or (850) 644-8696. Only after this, contact Dr. Kraft if the situation is not resolved.

UNIT ASSIGNMENTS

a. Each unit has a 40-point unit assignment; the composition may vary from instructor to instructor. Details will be announced in class and on the course website.

b. Upload and submit assignments using a computer, not a tablet or cell phone. *Note: Do not use the Canvas app for submitting assignments or taking tests.

c. It is your responsibility to learn to use Canvas and TurnItIn properly and to properly upload the correct document in the proper format by the due date and time. Review the information on the “Help” tab on Canvas for details about submitting assignments.

d. *TIP: We highly encourage all students to download a TurnItIn digital receipt after they submit as proof of proper assignment submission for EVERY assignment. See the link for more details: https://support.canvas.fsu.edu/kb/article/1148-students-how-to-download-a-turnitin-digital-receipt/

e. No late assignments are accepted.

f. No assignments are accepted via email, even if they are sent prior to the deadline. All assignments must be properly submitted to the course site to be eligible for grading. Emailing an assignment does not constitute proper submission of the assignment.

g. If you experience problems with the course website, contact Office of Distance Learning Technical Support (not the BSC1005 office) at 850-644-8004 M-F 8-5pm for assistance. Only after speaking with ODL, contact course coordinators if the issue is not resolved.

h. *Technical Errors Note: If students experience a technical issue when submitting their assignment, they should alert course coordinators BEFORE the deadline for the assignment.
   o Be prepared to provide the following: (1) The TurnItIn digital receipt as proof of your submission (2) evidence that the assignment was completed on time (3) evidence of the technical error
The FSU Learning Management System uses sophisticated tools that accurately track all clicks by each user through the system. If you report technical difficulties with assignments, please be honest or you could be charged with an Academic Honor Policy violation.

**Essay Assignments**

a. Before creating an essay assignment, learn strategies to avoid plagiarism. See the following link from FSU Libraries about strategies to avoid plagiarism: [http://guides.lib.fsu.edu/plagiarism](http://guides.lib.fsu.edu/plagiarism)
b. Essay assignments are submitted to TurnItIn for originality checking. Read the instructions on the course website before submitting your assignment.
c. Students have unlimited submissions to the assignment link before the due date/time. The last paper submitted by the due date/time is the paper that will be graded.
d. Attach a file and use only Text, MS Word, Microsoft PowerPoint, Postscript, PDF, RTF, HTML, Word Perfect, Hangul, or Open Office file types. **Assignments submitted as any other file type are not supported by TurnItIn and are therefore not acceptable submissions.** All submissions must run through TurnItIn. Assignments typed in the comment box will not be graded.
e. We suggest that students submit their assignments prior to the due date/time and use the TurnItIn tool to view the percentage that the paper matches online sources, or another student’s paper.
   o If papers have a high percent match, students should revise their drafts and resubmit. If the last paper submitted (the gradable draft) has a match greater than 15%, it will be flagged and may result in an Academic Honor Policy violation.
   o Correcting an issue disclosed by TurnItIn is not a valid excuse for submitting a late assignment. We suggest submitting assignments and revising in advance of the due date, as late assignments will not be accepted.
   o **Tip:** Do not repeat the assignment questions in the submission: it will increase your match percentage. If the assignment directs you to list web addresses, you can disregard these as matches.

**NATURE OF SCIENCE (NOS) ASSIGNMENT**

Each student will complete an assignment on the Nature of Science (NOS) that is worth up to 40 points. This assignment was developed to encourage students to clarify the characteristics and processes of science, as well as to draw relationships between science, class material, and other disciplines. Students are expected to watch three TED Talks from the list we provide and to write a short paper (minimum of 750 words, excluding references) using the outline posted in the assignment guidelines. **Note:** The expectations for this assignment are high; full details regarding this assignment and a grading rubric can be found on the course site under the “Nature of Science Assignment” module. Unit assignment rules on pg 3-4 of the syllabus apply to this assignment. This assignment is due XXX.

**IN-CLASS CONCEPTUAL QUESTIONS**

a. How do I earn credit on in-class conceptual questions?
   a. iclicker is used in the course for participation as well as to promote and assess student understanding of concepts. **You must click for all questions during a lesson, and all clicks must be properly received by the device on stage, to earn credit for that lesson.**
   b. Answer correctness is not necessary to earn credit.
   c. In-Class Conceptual Questions credit is considered optional (extra credit); up to XX possible points can be earned throughout the semester.

b. What devices can I use?
a. Purchase a new or used iclicker 1, 2 or +. If you already have one, you do not need a new one, but you must register it for our course. Do not purchase iclicker GO because connectivity in Ruby Diamond is unreliable. *Note: the Reef polling app for mobile devices will not be used in this course, as wifi connectivity is unreliable in Ruby Diamond.

b. Navigate to the “i>clicker registration” tab on the course site. Select “Remote Registration”. Enter the 8 character remote ID on the back of the iclicker, and be sure your campus email address is correct. Select “Register”.

c. Please use a Chrome browser for the best registration experience.

d. If you have used a different iclicker in the past that you will NOT be using for this course, unregister it (and any other you no longer own/ use). Be sure that previously owned iclickers are unregistered to previous owners.

c. What are the logistics of using iclicker in class?

a. Use iclicker on XXX as practice to learn how to properly use it. iclicker use for credit will begin XXX.

b. The iclicker remote frequency for Ruby Diamond is AA. Follow the instructions on the back of your iclicker remote to click in responses during class.

c. You are responsible for the effective use of your iclicker remote (remote must be brought to class, have functioning batteries, be on the AA frequency, you must receive verification, etc.) and for confirming iclicker points are accurate on the course site.

d. If your points aren’t showing in your Grade Center, contact Dr. Kraft so we can help solve the problem.

a. What happens if my iclicker malfunctions during class?

a. If you experience a technical error with your iclicker in class, please do the following:

i. Take a picture of your malfunctioning iclicker that includes a date and time stamp. The date and time stamp must be present in your evidence as proof that the error occurred during an iclicker question. Other evidence may be acceptable as well, but avoid these problems by checking batteries etc. BEFORE class.

ii. Talk to Dr. Kraft after class. Show her your iclicker and that it was set to the correct frequency, has functioning batteries, etc. and explain the issue, then email the photo to her.

b. Without sufficient evidence, credit cannot be awarded. If you continue to have problems, please meet with Dr. Kraft to solve the problem.

d. You are responsible for your iclicker account at all times. Do not allow another student to have access to your iclicker remote. You may only use your own iclicker; clicking for someone else constitutes a violation of the Academic Honor Policy and could invalidate your iclicker credit for the whole semester. If another person is using your iclicker remote, it will be assumed you have given them permission and you will be charged with an Academic Honor Policy violation. If a student is seen using two iclicker remotes during class, the iclicker ID’s will be recorded.

e. For help with iclicker, contact ODL Tech Support (850-644-8004) or visit the iclicker student support website: https://community.macmillan.com/community/iclicker-support/iclicker-student-support.

EXTRA CREDIT COURSE TOUR QUIZ
The extra credit Course Tour Quiz will familiarize you with course resources, policies and procedures. Review the syllabus, FAQs, and resources on the course site and complete the 8 question quiz by XXX to earn up to 8 points extra credit. Students are allowed up to 3 attempts for this quiz and the highest grade will be counted.
LETTER GRADE CALCULATION:

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Points Each</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Assignments</td>
<td>4 @ 40 points</td>
<td>= 160 points</td>
</tr>
<tr>
<td>Unit Exams</td>
<td>4 @ 200 points</td>
<td>= 800 points</td>
</tr>
<tr>
<td>NOS Assignment</td>
<td>40 points</td>
<td>= 40 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1000 points</strong></td>
<td></td>
</tr>
</tbody>
</table>

You can calculate your total points by adding up points earned from exams, assignments, and extra credit opportunities. Calculate your percentage at any point during the semester by dividing the points you have earned by the points possible (at the end of the semester after all exams and assignments are completed, 1000 points will be possible, regardless of the denominator shown in Canvas). Then use the table below to see the corresponding letter grade.

POINT BASED GRADING SCALE:

<table>
<thead>
<tr>
<th>Letter Grade Earned</th>
<th>Total Points at the end of the semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>880 and up</td>
</tr>
<tr>
<td>B</td>
<td>780 to 879.99</td>
</tr>
<tr>
<td>C</td>
<td>680 to 779.99</td>
</tr>
<tr>
<td>D</td>
<td>580 to 679.99</td>
</tr>
<tr>
<td>F</td>
<td>579.99 and below</td>
</tr>
</tbody>
</table>

Note: There are no + or – grades. Grades will not be rounded up or down. There are no extra points available at the end of the semester for those who are close to the next letter grade.

RUBY DIAMOND CONCERT HALL AND BEHAVIORAL POLICIES (FALL AND SPRING SEMESTERS)

a. Ruby Diamond Concert Hall is the primary performance venue for the FSU College of Music and for many other University departments on our campus. It is important to keep in mind that Ruby Diamond is a unique learning classroom venue for our course. To ensure protection of its beauty, we ask everyone to respect the space and to exhibit concert hall etiquette while in class. We kindly ask you to keep your feet off of the seats/woodwork and to not bring food or drinks (including water outside of a backpack) into the hall.


c. Do not use the course website for solicitation. It is a violation of the FSU IT policy [http://policies.vpfa.fsu.edu/bmanual/its_info.html](http://policies.vpfa.fsu.edu/bmanual/its_info.html) and the FSU solicitation policy [http://policies.vpfa.fsu.edu/bmanual/comsol.html](http://policies.vpfa.fsu.edu/bmanual/comsol.html) and anyone doing this is subject to disciplinary action.

ATTENDANCE AND MISSED COURSEWORK POLICIES:

UNIVERSITY ATTENDANCE POLICY

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Official University activities include official events at which the student is representing the
University, such as athletic competitions and academic activities sponsored by a student’s academic department or college. Registered Student Organizations (RSO’s) and Greek Life activities are not considered official university activities. The current list of Registered Student Organizations can be found at: https://nolecentral.dsa.fsu.edu/organizations. Consideration will also be given to students whose dependent children experience serious illness.

All students are expected to abide by each instructor’s class attendance policy. Students must also provide advance notices of absences (when possible) as well as relevant documentation regarding absences to the instructor as soon as possible following the illness or event that led to an absence. Regardless of whether an absence is excused or unexcused, the student is responsible for making up all work that is missed.

*Note for this course:* Excuses for religious holy days will be based on the interfaith calendar: http://www.interfaith-calendar.org/.

**ATTENDANCE AND MISSED COURSEWORK POLICIES FOR THIS COURSE:**

a. Our attendance coordinator is XXX. Her office is located in 428 Carothers.

b. **What happens if I miss class and want In-Class Conceptual Questions credit?**
   a. If you miss class due to an excused absence (See University Attendance Policy) you may be allowed in-class credit for the days you missed if you bring original, verifiable documentation covering the date of the absence(s) to the attendance coordinator in her office.

c. **What happens if I miss submitting an assignment?**
   a. If you miss submitting a unit or optional assignment and have original, verifiable documentation of an excused absence covering the date and time the assignment was due, bring this documentation to Mrs. Ragan in her office. Excused absences include those listed in the University Attendance Policy.

d. **What happens if I miss taking an exam?**
   a. If you miss taking an exam and have original, verifiable documentation of an excused absence covering the testing window (page 2 of syllabus), bring this documentation to Mrs. Ragan in her office. Excused absences include those listed in the University Attendance Policy.
   b. If you miss taking an exam due to forgetfulness or an unexcused absence and it is still during the testing window, please contact Dr. Kraft immediately.

e. *Please note, we verify every piece of documentation we receive. Submission of falsified documentation constitutes a violation of FSU’s Academic Honor Policy. Students will be charged with a violation if they submit falsified documentation.*

**GRADE, ABSENCE, AND ASSIGNMENT CONCERNS DEADLINES:**

Our expectation is that students bring their concerns regarding their grades, absences, and assignments to the attention of a course coordinator within 1 week of the last day of the exam for Units 1-3, and by the last day of the semester (XXX) for Unit 4 and the NOS Assignment. It is unusual for course coordinators to consider concerns beyond these deadlines; please do not wait until the end of the semester to bring your concerns to our attention.

**TUTORING AND REVIEW SESSIONS FROM BSC 1005 TEACHING ASSISTANTS:**
a. Students in this course are supported by five teaching assistants; all are biology majors at FSU. Teaching assistants attend every lesson and are familiar with course content.
b. Each TA holds weekly office hours in 425 Carothers (see course site for times). No appointment is necessary.
c. **PowerPoint slides:** Students are welcome to stop by a TA’s office hours during the semester to view the slides presented during class and discuss concepts with a TA.
d. **Test Attempts:** Students are encouraged to meet with a TA in between test attempts to discuss the concepts they missed on the first attempt in order to clarify studying for the second attempt.
e. **Review Sessions:** Prior to each unit exam, TA’s will lead small-group review sessions (location and time TBA). These review sessions are meant to be interactive; bring your booklet and come prepared with questions.

### ACADEMIC HONOR POLICY

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/academic-resources/academic-integrity-and-grievances/academic-honor-policy.)

The Florida State University Academic Honor Policy has eight different types of violations:

1. **Plagiarism:** Presenting the work of another as one's own (i.e., without proper acknowledgement of the source).
2. **Cheating:** Improper access to or use of any information or material that is not specifically condoned by the instructor for use in the academic exercise.
3. **Unauthorized Group Work:** Unauthorized collaborating with others. Typical examples include: working with another person or persons on any activity that is intended to be individual work, where such collaboration has not been specifically authorized by the instructor.
4. **Fabrication, Falsification, and Misrepresentation:** Unauthorized altering or inventing of any information or citation that is used in assessing academic work. Typical examples include: submitting a false excuse for a class absence or tardiness in a scheduled academic exercise.
5. **Multiple Submissions:** Submitting the same academic work (including oral presentations) for credit more than once without instructor permission.
6. **Abuse of Academic Materials:** Intentionally damaging, destroying, stealing, or making inaccessible library or other academic resource material.
7. **Complicity in Academic Dishonesty:** Intentionally helping another to commit an act of academic dishonesty.
8. **Attempting to commit any offense as outlined above.** Students are expected to do their own original work. Any student caught cheating, including using papers, reports, or tests from other students will be penalized to the full extent allowed by the Student Handbook. Resubmitting your own work from previous courses is also considered a violation.

DEAN OF STUDENTS:
The office of the Dean of Students is there to support regarding policies and procedures, especially those related to the Academic Honor Policy. If you are struggling with life events and these are impacting your classes, the Dean of Students is there for you. Please contact them if you ever need help. They can be found at http://deanofstudents.fsu.edu/

AMERICANS WITH DISABILITIES ACT:
Students with disabilities needing academic accommodation should:
(1) register with and provide documentation to the Student Disability Resource Center; and
(2) bring a letter to the instructor indicating the need for accommodation and what type.
Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided.
This syllabus and other class materials are available in alternative format upon request.
For more information about services available to FSU students with disabilities, contact the:
Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/

FREE TUTORING from FSU:
On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services’ comprehensive list of on-campus tutoring options at http://ace.fsu.edu/tutoring or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

SEXUAL MISCONDUCT/TITLE IX STATEMENT:
As a recipient of Federal financial assistance for education activities, FSU is required by Title IX of the Education Amendments of 1972 to ensure that all of its education programs and activities are free from discrimination on the basis of sex. Sexual discrimination includes sexual misconduct (sexual violence, stalking, intimate partner violence, gender based animosity and gender based stereotyping). If you have questions about Title IX or wish to file a Title IX complaint, please visit the FSU Title IX website: www.titleix.fsu.edu or call their office at 850-644-6271. Please note that as Responsible Employees, all faculty are required to report any incidents of sexual misconduct to the Title IX Office. For information about the confidential on-campus Victim Advocate Program, please visit https://dos.fsu.edu/vap/.

STUDENT ELIGIBILITY FOR AN INCOMPLETE GRADE:
Incomplete (“I”) grades should be recorded only in exceptional cases when a student, for documented reasons, has failed to complete a well-defined portion of a course, but was passing the
course up until the time he or she failed to complete the work. Even under these circumstances, the authority for determining whether to grant an “Incomplete” rests with the instructor.

SYLLABUS CHANGE POLICY:
Except for changes that substantially affect implementation of the evaluation (grading) statement this syllabus is a guide for the course and is subject to change with advance notice.
## SAMPLE COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, January 8</td>
<td>Introduction and Mandatory First Day Attendance</td>
<td>Dr. P. Bryant Chase</td>
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<tr>
<td></td>
<td><strong>Unit 1: Movement and Physiology</strong></td>
<td><a href="mailto:chase@bio.fsu.edu">chase@bio.fsu.edu</a></td>
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<td></td>
<td><strong>January 10-February 2</strong></td>
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<tr>
<td></td>
<td><strong>In-class Conceptual Questions:</strong> 8 classes x 1 point/class = 8 points possible</td>
<td></td>
</tr>
<tr>
<td>Monday, January 15</td>
<td><strong>No Class – Martin Luther King Jr. Day</strong></td>
<td>Dr. Gregory M. Erickson</td>
</tr>
<tr>
<td></td>
<td><strong>February 5-February 26</strong></td>
<td><a href="mailto:gerickson@bio.fsu.edu">gerickson@bio.fsu.edu</a></td>
</tr>
<tr>
<td>Wednesday, January 17</td>
<td>In-class Conceptual Questions begin</td>
<td></td>
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<tr>
<td>To Be Announced</td>
<td>Unit Assignment Window</td>
<td></td>
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<tr>
<td>Friday, February 2</td>
<td>In-Class Review</td>
<td></td>
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<tr>
<td>February 5-8</td>
<td>Unit 1 Testing Days</td>
<td></td>
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<tr>
<td></td>
<td><strong>Unit 2: Living with Dinosaurs</strong></td>
<td>Dr. Brittany Kraft</td>
</tr>
<tr>
<td></td>
<td><strong>February 5-February 26</strong></td>
<td><a href="mailto:bkraft@bio.fsu.edu">bkraft@bio.fsu.edu</a></td>
</tr>
<tr>
<td></td>
<td><strong>In-class Conceptual Questions:</strong> 10 classes x 1 point/class = 10 points possible</td>
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<tr>
<td>To Be Announced</td>
<td>Unit Assignment Window</td>
<td></td>
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<tr>
<td>Monday, February 26</td>
<td>In-Class Review</td>
<td></td>
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<tr>
<td>February 26-March 1</td>
<td>Unit 2 Testing Days</td>
<td></td>
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<td></td>
<td><strong>Unit 3: Animal Behavior, A Biological Perspective</strong></td>
<td>Dr. Marie C. Dennis</td>
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<td></td>
<td><strong>February 28-March 28</strong></td>
<td><a href="mailto:mdennis@bio.fsu.edu">mdennis@bio.fsu.edu</a></td>
</tr>
<tr>
<td></td>
<td><strong>In-class Conceptual Questions:</strong> 10 classes x 1 point/class = 10 points possible</td>
<td></td>
</tr>
<tr>
<td>To Be Announced</td>
<td>Unit Assignment Window</td>
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<tr>
<td>March 12-March 16</td>
<td><strong>No Class—Spring Break</strong></td>
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<tr>
<td>Wednesday, March 28</td>
<td>In-Class Review</td>
<td></td>
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<tr>
<td>Friday, March 30</td>
<td>No Class</td>
<td></td>
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<tr>
<td>April 2-5</td>
<td>Unit 3 Testing Days</td>
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<td><strong>Unit 4: Biology Myths</strong></td>
<td>Dr. Marie C. Dennis</td>
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<tr>
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<td><strong>April 2-April 23</strong></td>
<td><a href="mailto:mdennis@bio.fsu.edu">mdennis@bio.fsu.edu</a></td>
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<td><strong>In-class Conceptual Questions:</strong> 10 classes x 1 point/class = 10 points possible</td>
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<tr>
<td>To Be Announced</td>
<td>Unit Assignment Window</td>
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<tr>
<td>Monday, April 23</td>
<td>In-Class Review</td>
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<tr>
<td>April 28-May 4</td>
<td>Unit 4 Testing Days (during finals week)</td>
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</table>
Sample Unit Exam Questions

Objective 1: Pose questions or hypotheses based on scientific principles

Unit: Animal Behavior, a Biological Perspective

Nearly every bird species has a distinctive song. Females use these distinctive songs to identify males of their own species. Within each species, individual males have slight variations in song. You observe a young male bird sitting next to an adult male singing to a female. Later, you observe the young male singing a similar, but slightly distinct version, of the adult male’s song.

In class, we learned about the levels of analysis. Read the scenario above, then select which level of analysis best describes the explanation for this behavior below.

A. Ontogeny, because this behavior the result of changes during development.
B. Physiology, because this behavior is due to effects of genes, hormones, or body systems.
C. Ontogeny, because this behavior is due to effects of genes, hormones, or body systems.
D. Physiology, because this behavior the result of changes during development.

Naked mole rats are mammals that live underground. They have a complex social structure, in which the only female that mates is a large queen. The smaller females tend to the offspring but do not reproduce their own young. Which of the following statements BEST explains this behavior in terms of inclusive fitness?

A. The smaller females maximize their inclusive fitness; they are related to the queen and her offspring, and yield more gene copies by helping care for the young than by reproducing on their own.
B. The smaller females minimize their inclusive fitness; they are not related to the queen and her offspring, and yield fewer gene copies by helping care for the young than by reproducing on their own.
C. The smaller females maximize their inclusive fitness; they secretly mate with males that the queen has already mated with and tend to both the queen’s offspring as well as their own, thus producing the most gene copies.

Unit: Living with Dinosaurs

A dinosaur with “lizard hips”, enlarged thumb claws, and nostrils atop its head is:

A. A saurischian, sauropodomorph, and a sauropod
B. An ornithiscian, sauropodomorph, and a sauropod
C. An ornithiscian, ornithopod, and a pachycephalosaur
D. A saurischian, theropod, and a dinosauroid
E. A saurischian, theropod, and a tyrannosaur

*See cladogram document. Students are provided with the cladogram and are expected to know how to use it during the exam. Their unit assignment teaches them how to use this tool.

Objective 2: Use appropriate scientific methods and evidence to evaluate claims or theoretical arguments about the natural world

Unit: Animal Behavior, a Biological Perspective

Which approach to collecting behavioral data would be most appropriate for testing the following question, and why?

How does mosquitofish sexual behavior change when males in a social environment are swapped out with females?
A. Field Manipulation, because the scientist could easily control for and manipulate the sex of the other fish present in a large population of fish in the natural environment.
B. Field observation, because the scientist is interested in documenting a range of responses to a change in the environment.
C. Controlled laboratory experiment, because in order to measure the response to this specific stimulus, the scientist would need a controlled habitat in order to change how the males and females in the environment.

You are walking on a trail in the Amazon rainforest. You observe two birds, one brightly colored, interacting. The brightly colored bird jumps up and down repeatedly in front of the other, flapping its wings. After several times of this, the second bird flies away. Which of the following BEST describes a way we could evaluate whether or not communication occurred in this situation?

A. The signal must predictably influence the behavior of the receiver for this to be communication. We could observe these birds interact repeatedly and create a catalogue of all their movements and responses to assess whether or not this behavior consistently produces this response.
B. The signal must predictably influence the behavior of the receiver for this to be communication. We witnessed the first bird jumping up and down repeatedly, but did not see the second bird react until after this had occurred several times. This suggests that this was not communication.
C. We could follow the second bird to observe what activities it performed after this interaction to evaluate whether or not communication had occurred.

Unit: Busting Biology Myths

Which one of the following statements inaccurately represents the nature of life science inquiry?

A. Science inquiry involves the scientific community.
B. Science experiments must be reproducible by others
C. Scientific inquiries are always initiated by carefully thought out hypothesis and not random observations (example of penicillin)
D. Scientists do not have ways to secure complete and absolute truth

The chart below shows the MMR population coverage between 1970 and 2015. The table gives the basic reproduction number (RO) as well as the threshold (%) for various diseases. Members of the population cannot be vaccinated with the MMR vaccine. Which year would they start to benefit from herd immunity regarding these 3 diseases?
Force-velocity relationships are shown in the accompanying Figure. Which of the following is information that we CANNOT obtain from this graph?

A. Fast muscles have a higher Vmax than slow muscles
B. Both fast and slow muscles shorten more rapidly when the load that they are working against (force that they are generating) is reduced
C. Slow muscles generate less force than fast muscles
D. Muscles generate their maximum force when they are held isometric and cannot shorten

Unit: Living with Dinosaurs

The fact that Theropods have hollow bones suggests they may be closely related to this group of living animals (Hint: use the cladogram*)

A. Mammals
B. Birds
C. Marsupials
D. Lizards
E. Crocodiles

*See cladogram document. Students are provided with the cladogram and are expected to know how to use it during the exam. Their unit assignment teaches them how to use this tool.

Which of the following lists describes the most plausible agents leading to the “extinction” of the dinosaurs:

A. Plants developed better defenses, mammals ate all the dinosaur eggs, racial senescence
B. Eggshells became too thin, cataracts, a supernova
C. Volcanism, the earth got too cold, disease
D. Volcanism, lowering of sea levels, asteroid impact
E. Asteroid impact, plants developed better defenses, eggs became too thin

Objective 3: Analyze and interpret research results using appropriate methods

Unit: Animal Behavior, a Biological Perspective

The following table summarizes the results of Lehrman’s study on hormones and bow-coo behavior in ring doves. Which of the following best describes the evidence that is missing from this study?

<table>
<thead>
<tr>
<th>Group</th>
<th>Experiment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Female heard male coo, but could not see him</td>
<td>Female began to build nest after two days</td>
</tr>
<tr>
<td></td>
<td>bow</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Female saw the male bow, but could not hear him</td>
<td>Female began to build nest after two days</td>
</tr>
<tr>
<td></td>
<td>coo</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Female was with a neutered male that did not</td>
<td>No nesting activity</td>
</tr>
<tr>
<td></td>
<td>bow or coo</td>
<td></td>
</tr>
</tbody>
</table>

A. This study showed that both bowing and cooing was important to trigger nest building, but it does not directly test how hormones such as estrogen stimulate nest building. Lehrman conducted another study with the females from group 3, where he injected them with estrogen, and saw a direct switch to nest building behavior. These studies together supported his hypothesis (i.e. Lehrman did not reject his hypothesis based on these results).
B. This study showed that neither bowing nor cooing was important to trigger nest building, but it did directly test how hormones such as estrogen stimulate nest building. Lehrman could infer from this study alone that higher estrogen levels were important to trigger nest building behavior.
C. This study refutes Lehrman’s hypothesis, because it failed to include a test of the role of estrogen on nest building behavior, and there were no differences in the female behavior between groups 1 and 2.
Review the figure above from the study conducted by Farr and Herrnkind (1974). Which of the following is true regarding this figure and the scientific method?

A. The hypothesis that the presence of an extra female “turns on” the male can be rejected.
B. The hypothesis that the presence of an extra female “turns on” the male can be supported.
C. The hypothesis that the presence of another guppy regardless of sex causes more displays can be supported.

Which of the following BEST describes how the results of Tinbergen’s study on eggshell removal in laughing gulls (see figures above) relates to adaptation and selection?

A. The eggshell removal behavior evolved via sexual selection; choosy females only mated with the males that removed the most eggshells, promoting this behavior in the population.
B. This behavior arose via natural selection; there was higher survival of the offspring of the eggshell shard-removing parents.
C. This behavior arose via natural selection; there was lower survival of offspring of the shell-shard removing parents, resulting in low prevalence of this behavior in the population.

Unit: Busting Biology Myths

Using the chart below, which shows the average ethylmercury [compound found in thimerosal] dose from vaccines and the annual number of autism cases, we can infer all of the following statements except:
A. The number of autism cases has risen the most at the time when the children were not administered any ethylmercury by 10 months of age.

B. Children born after 1993 were not administered any ethylmercury from vaccines.

C. The number of autism cases was lowest for children born between 1981 and 1991.

D. The number of cases diagnosed in children born between 1992 and 1998 has risen and correlated with the increase of the dose of ethylmercury received by 10 months of age.
The purpose of this assignment is to encourage students to think about the many characteristics of science, and to relate the characteristics of science to a different discipline they are interested in. Students will watch three TED Talks from the list below and use specific ideas from these talks to develop an explanation of the nature of science. Review the information in the syllabus regarding assignment submission; you are responsible for the proper submission of your assignment.

Learning objectives of this assignment:
Students will be able to...
- develop an explanation of the nature of science by describing three of its characteristics.
- use resources such as TED Talks to support their reasoning.
- apply these characteristics to their own discipline of interest in order to draw connections between science and other fields.
- pose questions or hypotheses based on scientific principles.
- use appropriate scientific methods to evaluate claims or theoretical arguments about the natural world.

Grade Calculation (see rubric at the end of this document for full point break down):
Introduction = 8 points
Characteristic 1 = 8 points
Characteristic 2 = 8 points
Characteristic 3 = 8 points
Conclusion = 8 points
TOTAL = 40 points

Assignment Directions:
This assignment should be written as a paper (i.e. in paragraph form) and should be between 750 and 1000 words (excluding references). You do not need to repeat the instructions in the assignment. You will watch three of the TED Talks from the list below. While watching the talks you selected, select specific ideas from the talks that characterize science. In particular, evaluate the claims or theoretical arguments about the natural world that the presenters make in their talks. Combine these ideas that you identified in the talks with what you have learned in class to develop an explanation of the nature of science. Your explanation must be supported by at least three different characteristics of science. Additionally, you will compare and contrast each characteristic from your explanation of the nature of science to the characteristics of the nature of a discipline that interests you, and speculate on the types of questions people in these fields can work together to answer.

For more ideas of what defines the nature of science, visit this website:
http://www.indiana.edu/~ensiweb/nos.html
TED Talks (Pick Three):

**Describing Science:**

- Uri Alon: Why science demands a leap into the unknown
- Kevin B. Jones: Why curiosity is the key to science and medicine
- Naomi Oreskes: Why we should believe in science
- Robin Ince: Science versus wonder
- Stuart Firestein: The pursuit of ignorance
- David Deutsch: A new way to explain explanation

**Science and society:**

- Jedidah Isler: The untapped genius that could change science for the better
- Beay Lotto + Amy O’Toole: Science is for everyone, kids included
- Tyler DeWitt: Hey science teachers – make it fun
- Rachel Pike: The science behind a climate headline
- Mae Jemison: Teach arts and sciences together
- Dan Ariely: Beware of conflicts of interest
- James Randi: Homeopathy, quackery, and fraud
- Molly Crockett: Beware neuro bunk
- Lee Smolin: Science and democracy
- Michael Shermer: Why people believe weird things

**Science, art, design, and technology:**

- Vanessa Ruiz: The spellbinding art of human anatomy
- Neri Oxman: Design at the intersection of technology and biology
- Heather Barnett: What humans can learn from semi-intelligent slime

**Science is a changing and growing field:**

- Carrie Poppy: A scientific approach to the paranormal
- Adam Savage: How simple ideas lead to scientific discoveries
- Richard Dawkins: On our queer universe
- Ben Goldacre: Battling bad science
- Michael Specter: The danger of science denial
- Jonathan Dori: On what we think we know
- Michael Nielsen: Open science now!
- E. O. Wilson: Advice to a young scientist
Use the following outline as a guide when writing your paper. Remember, your paper must be written in paragraph form. See the course website for a complete rubric of this assignment. Failure to use TED Talks from the list on page 2 will result in a “0” for this assignment.

1. Introduction (8 points)
   a. Provide the exact title and a brief overview (1-2 sentences) of each TED Talk you watched. All TED Talks must come from the list on page 2.
   b. Briefly introduce the three specific characteristics you identified to explain the nature of science.
   c. Describe your major/discipline/career field of interest.

2. The main body of the paper should describe the three characteristics of science you introduced in part (b) of the introduction, relate these characteristics back to concepts learned in the BSC1005 course, and compare each characteristic to the discipline you described in part (c) of the Introduction (total 24 points). Evaluate the claims and arguments made in the TED Talks to justify why each characteristic you identified is scientific and to support your comparisons between the nature of science and the nature of a different discipline.

   For each characteristic:
   a. Describe the characteristic (for example: “scientific knowledge is based on evidence.”).
   b. Support this characteristic by using specific ideas from the TED Talks. You may incorporate additional information learned from class etc., but be sure to reference at least one TED Talk to support each characteristic. Provide time stamps from the videos as part of your evidence (i.e. “As Carrie Poppy noted (2:13)...”). Refrain from direct quotes.
      i. *Note: be sure to evaluate the claims or arguments made in the TED Talk in your assessment of how it supports this characteristic of the nature of science.
   c. How does this characteristic relate to at least one concept or topic you have learned about in BSC1005? (For example: “Dr. Erickson discussed the types of evidence paleobiologists use to learn about the lives of dinosaurs”).
   d. How is this characteristic of science similar to or different from characteristics of your discipline? Compare and contrast how this characteristic of science relates to your major/discipline/career field of interest (for example: “Science uses evidence-based reasoning, and, in my field, we also use evidence to prove our clients are innocent. However, the types of evidence in my field seem to be different from science. For instance, ...”). Only thoughtful, descriptive responses with at least one example to support reasoning will receive full credit. Use the claims and arguments made in the TED Talks to provide support for your answer.

3. Conclusion (8 points)
   a. Summarize your explanation of the nature of science based on the three characteristics you described in your paper.
   b. Pose one scientific question you think scientists and professionals in the discipline you described could work together to answer. Be sure to mention at least one of the characteristics/connections you described in the previous paragraphs to support your ideas.
c. Describe **how** you think scientists and professionals in your discipline would go about answering this question (i.e. what methods would they use? What data would they collect?).
<table>
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<th>BSC 1005 NOS Assignment Sample Rubric Liberal Studies</th>
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<tbody>
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</tr>
<tr>
<td>1</td>
<td><strong>Introduction Part (a)</strong></td>
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<td><strong>Introduction Part (c)</strong></td>
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<td>--------------------------</td>
</tr>
<tr>
<td>10</td>
<td>No concept or topic in BSC1005 is mentioned and/or no connection is made to the characteristic. (0)</td>
</tr>
<tr>
<td>11</td>
<td>Concept or topic in BSC1005 is mentioned, but connection to characteristic is poorly defined. (1)</td>
</tr>
<tr>
<td>12</td>
<td>Example of how this characteristic relates to a concept or topic in BSC1005 is clearly presented. (3)</td>
</tr>
<tr>
<td>13</td>
<td>No concept or topic in BSC1005 is mentioned and/or no connection is made to the characteristic. (0)</td>
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### Conclusion Part (b)

<table>
<thead>
<tr>
<th>17</th>
<th>No question is posed, or question/explanation is indiscernible (0)</th>
<th>One of the following is missing or is unclear:</th>
<th>All of the following are present and clear:</th>
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<tbody>
<tr>
<td></td>
<td>Question</td>
<td>A connection back to at least one of the characteristics (1.5)</td>
<td>Question</td>
</tr>
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</table>

### Conclusion Part (c)

| 18 | The following is missing: How scientists and other professionals work together to answer the question. (0) | The following is unclear: How scientists and other professionals work together to answer the question. (1) | The following is present and clear: How scientists and other professionals work together to answer the question. (2) |

### Liberal Studies Assessment breakdown:

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Evaluation</th>
</tr>
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<tbody>
<tr>
<td>Pose questions or hypotheses based on scientific principles.</td>
<td>Sum of scores on blocks 16-18 (up to 8 points)</td>
</tr>
<tr>
<td>Use appropriate scientific methods to evaluate claims or theoretical arguments about the natural world.</td>
<td>Sum of scores on blocks 4-15 (up to 24 points)</td>
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