

Spring 2023

**BIO 112: Principles of Biology 2**

The Indiana Academy for Science, Mathematics, and Humanities

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| **BSU Credits** | 4 credit hours | **College of Science and Humanities** | Department of Biology |
| **Instructor** | Dr. Jeff Smith | **Office Location** | EL 009C |
| **Email** | Jsmith4@bsu.edu | **Office Hours** | TBD- 10 hours will be provided |
| **Meeting Times** | MWF for 50 min  Lab T or R for 1h and 50 min | **Meeting Location** | B211 |
| **Prerequisite(s)** | None | | |
| **Course Description** | Examines the diversity, evolutionary relationships, ecology, and physiology of organisms in the animal kingdom with an introduction to the protozoans. Emphasizes structure and function at the organismal level, classification, and phylogenetic relationships. Lecture and laboratory. | | |
| **Core Transfer Library Course** | Biology 1 & 2 w/lab (2 course sequence) | | |
| **Textbook and/or Course Materials** | Campbell Biology in Focus, 3rd ed. Urry, Cain, Wasserman, Minorsky and Orr. 2020. Pearson Education Inc. | | |
| **Course Learning Outcomes** | This Biology course is designed to offer students a solid foundation in introductory college-level biology. By structuring the course around the four Big Ideas and Science Practices, the students will be assisted in developing an appreciation for the study of life and helped to identify and understand unifying principles within a diversified biological world.  Science is a way of knowing. Therefore, knowing about Biology requires that students learn the process of science and develop critical thinking skills. The course will focus not only on knowing science content, but also learning skills to analyze and interpret data, and to communicate information in a meaningful way to others.  At the end of the course, students will:  1. have an awareness of the integration of other sciences into the study of Biology,  2. understand scientific processes,  3. know how to apply science methodology,  4. recognize how our own species is similar, yet different from other species  5. become knowledgeable and responsible citizens in understanding biological issues that could potentially impact their lives. | | |
| **Important Deadlines** | If you wish to drop your class(es), you must do so by August 26, 2022.  The withdrawal deadline is in October 2022 and will be announced once published by the University Registrar.  Dropping/Withdrawing from a class at your high school does not drop/withdraw you from your BSU Dual Credit class. Instructions for dropping/withdrawing can be found in the Dual Credit Student and Parent Handbook. | | |

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| **How BSU Grade will be Calculated** | **Multiple Choice Exams:** 35%  **Essay Exams:** 35%  **Homework: 15%**  **Lab Assignments: 15%** | |
| **How High School Grade will be Calculated** | The high school grade will be recorded based on the # of points earned in each category described above. | |
| **BSU Grading Scale** | Ball State grading scale will be entered prior to the course starting |  |
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| **High School Grading Scale** | Your high school scale. EXAMPLE: | |
| A: 90-100% | D\*: <65% |
| B+: 85-90% | Click or tap here to enter text. |
| B: 80-85% | Click or tap here to enter text. |
| B-: 75-80% | Click or tap here to enter text. |
| C: 70-75% | Click or tap here to enter text. |
| C-: 65-70% | Click or tap here to enter text. |
| **Schedule of Assignments** | Expectations for Assessements:   * A Unit Exam using Multiple Choice and Free Reqsponse Questions will be given after all Unit material has been covered. * During each unit, we will have weekly laboratory activities. Each activity will involve an assignment that will be due the following week. * The laboratory and homework assignments will have variable point values depending on the assignment.   **Unit Descriptions:**  Unit 6: Gene Expression and Regulation  DNA and RNA Structure  Replication  Transcription and RNA Processing  Translation  Regulation of Gene Expression  Gene Expression and Cell Specialization  Mutations  Biotechnology  Suggested Labs for Unit 6  DNA extraction  DNA modeling  Bacteria Transformation – pGlo Kit  Gel Electrophoresis – calculation of base pair size of DNA  Unit 7: Natural Selection  Introduction to Natural Selection  Natural and Artificial Selection  Population Genetics  Hardy-Weinberg Equilbrium  Evidence for Evolution  Common Ancestry  Phylogeny  Speciation and Extinction  Variations in Populations  Origins of Life on Earth  Suggested Labs for Unit 7  Hardy-Weinberg Modeling and Calculations  Blast Lab  UniProt Lab (Bats aren’t Bugs)  Unit 8: Ecology  Response to the Environment  Energy Flow through Ecosystems  Population Ecology  Effect of Density on Populations  Community Ecology  Biodiversity  Disruptions of Ecosystems  Suggested Labs for Unit 8  Transpiration – water cycle modeling  Aquatic Productivity – Calculation of Gross, Net Productivity  Diversity Index modeling | |
| **Classroom Policies & Information** | Student Expectations:   * **Please know that I like hearing from you.** I am here to support you. Please do not hesitate to contact me when you need help. **Communication is key.** * **You are expected to take an active role in class discussions/activities during lecture and lab.** Please come to our class meetings distraction free from other electronic devices or applications. * **You are expected to periodically check your email accounts and Canvas.** I will make class announcements through Canvas Announcements. * **Class materials and grades will be posted to Canvas and PowerSchool.** As grades are posted, it is your responsibility to make sure grades are posted correctly. Please contact me immediately if any grades are posted incorrectly. * **You are expected to turn in assignments on time.** Please see the late policy provided above for submitted assignments for more details. * **You are expected to attend class regularly and be there on-time.** If you are not in class on time, it will be reported as a tardy. If you are more than 15 minutes late for lecture or lab, then these may be recorded as absences. Exceptions might be made for students with extenuating circumstances. * **If you are absent from lecture or lab, it is your responsibility to contact me.** Work can be made up for excused absences. * **If you are absent on the day of the exam,** it is your responsibility to contact me as soon as you can to set up a time for you to make it up. * **All work you submit for individually submitted assignments/exams must be original.** Copying from another student or plagiarism of others’ work (including websites, textbooks, etc.) will result in at least a “0” for that assignment. Please review the Academic Integrity Policy provided above. | |
| **Attendance Policy** | It is the policy of the Indiana Academy that any absence from class is unexcused, except for illness, death in the family, college or school-related activities, and extenuating circumstances. When a student is absent from a class, the instructor reports the student absence to the Faculty Attendance Coordinator in the Office of Academic Affairs. Unless the absence is excused by a school official, it is considered unexcused. The decision as to whether an absence is excused is not determined by the instructor.  You are expected to attend every class. You are allowed one unexcused absences without penalty. Each additional unexcused absence will be penalized as follows: Unexcused absence (1) = 1-point subtraction from final grade. Unexcused absence (2) = 3-point subtraction from final grade. Unexcused absence (3) = 5-point subtraction from final grade. (For example, if you have an 89 final average with (3) unexcused absences your final grade will be 84). Four (4) or more unexcused absences will lead to academic and residential consequences beyond the scope of this class determined by the Office of Academic Affairs (i.e., residential groundings, parent/principal conference, and/or detention). | |
| **Late Work Policy** | * **All assignments are expected on the date announced in class.** Due dates will also be posted with the assignment on Canvas. However, assignments will be permitted a 24-hour extension without penalty or explanation.   + For example, work due on Friday must be turned in before 11:59 p.m. (midnight) on Saturday, ***not*** Monday. * **Work received after the 24-hour extension will receive a 30% deduction.**    + There are extenuating circumstances that might prevent a student from submitting work on time. These circumstances must be approved by IA administration.   + **If a student has an excused absence on a day an assignment is due, the student will not be penalized.** When the student returns to the classroom after an excused absence, they must communicate with the instructor about an appropriate due date for completion of missed work.   + **Each student is allowed to submit 1 homework assignment late (beyond the 24h grace period) for an unexcused reason without penalty.** In order to be granted this allowance, the student must contact the instructor to state that they will be submitting an assignment late. If work is submitted late without communication with the instructor, 30% will be deducted.   + **Laboratory assignments must be submitted on time.** 30% will be deducted for any assignments completed after the 24-hour extension.   + **Unexcused late work for a given unit cannot be submitted after the Unit Exam is completed.** Any work not submitted before the Unit Exam will receive a grade of “0”.   + **If you are absent for an exam**, the exam MUST be made up within the week of your return. | |
| **Make-up/Re-take Exam Policy** | **If you are absent on the day of the exam,** it is your responsibility to contact me as soon as you can to set up a time for you to make it up. After you return to campus, you will have 1 week to make up the exam. | |
| **Dual Credit-High School Credit Policy Statement** | Students may choose to enroll in Ball State’s Dual Credit Program to earn college credit for BIO 112, Principles of Biology 2, from Ball State at a reduced rate of tuition ($250 flat fee). Students who are eligible for free or reduced lunch this academic year may enroll at no charge if verified by the school.  To enroll in Ball State’s Dual Credit Program, students should have a 3.0 GPA on a 4.0 scale and complete the application & registration process before the given deadline. Ball State will bill students via postal mail; no money should be submitted to the high school. College credit can only be earned during the semester (or, in the case of year-long classes, during the academic year) in which the student is enrolled. Late enrollments are not permitted.  Whether college credit earned through dual credit courses will be accepted by another institution of higher education is determined by the college or university to which a student is seeking admission. Before enrolling through Ball State’s Dual Credit Program, students should check directly with that institution to determine if a course will be accepted and how it will be counted toward graduation requirements. *Refunds will not be issued if Ball State credits are not able to be transferred.* In most cases, students will need to earn a C or better to transfer credit from Ball State to another institution. Grades of D or lower earned in Ball State Dual Credit courses are recorded on a student’s Ball State transcript but may not be able to transfer.  The rigor of this course will be periodically reviewed by Ball State University faculty in an effort to maintain the high quality of education that each student receives. To learn more about Ball State’s Dual Credit Program, visit bsu.edu/dualcredit, call 765-285-1581 or email [dualcredit@bsu.edu](mailto:dualcredit@bsu.edu). | |
| **BSU Student Rights and Responsibilities** | While enrolled in Ball State’s Dual Credit Program, you are expected to abide by the academic rules of behavior befitting a university student. You should read the ***Dual Credit Student and Parent Handbook***, located at [bsu.edu/dualcredit](https://ballstate-my.sharepoint.com/personal/alhurt_bsu_edu/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Falhurt%5Fbsu%5Fedu%2FDocuments%2FDual%20Credit%2FHandbook%2FStudent%2DParent%20Handbook%2FDual%20Credit%20Program%20Student%2DParent%20Handbook%2Epdf&parent=%2Fpersonal%2Falhurt%5Fbsu%5Fedu%2FDocuments%2FDual%20Credit%2FHandbook%2FStudent%2DParent%20Handbook). In particular, review the Code of Student Rights and Responsibilities, focusing on the policies regarding student rights and responsibilities, behavior, academic integrity, and related procedures.  The ***Dual Credit Student and Parent Handbook*** includes information regarding student qualifications, prerequisites, available courses, responsibilities, financial aid stipulations, transferability, withdrawal, refund and billing policies and more. It is important that you review the information contained in it. | |
| **Student Academic Ethics Policy** | Actions which include but are not limited to cheating, plagiarism, falsely claiming to have completed work, cooperating with another person in academic dishonesty, knowingly destroying or altering another student's work, or attempting to commit an act of academic dishonesty that violates the Student Academic Ethics Policy (http://www.bsu.edu/associateprovost/academicethics).  The consequences of academic dishonesty are determined on a case-by-case basis by each instructor and may include but are not limited to one or more of the following academic sanctions: informal meeting, removal from dual credit course, dismissal from the university, or other appropriate consequence. | |
| **Policy on the Americans with Disabilities Act (ADA)** | If you need course adaptations or accommodations because of a disability, please contact the ***Office of Disability Services***. The ***Office of Disability Services*** coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability services can be contacted at 765-285-5293 or [dsd@bsu.edu](mailto:dsd@bsu.edu). | |
| **Title IX – Sexual Misconduct** | Ball State University is committed to establishing and maintaining an effective, safe, and nondiscriminatory educational environment in which all individuals are treated with respect and dignity. For information about Ball State University’s Interim Title IX Policy and Procedures, please visit our website. Please note that the University’s policy and procedures have undergone significant revisions starting with the 2020-21 school year and ongoing.  Consistent with the University’s Notice of Nondiscrimination and in accordance with the U.S. Department of Education’s implementing regulations for Title IX of the Education Amendments of 1972 (“Title IX”), Ball State University prohibits sexual harassment that occurs within its education programs and activities. This prohibition extends to all applicants for admission or employment and to all students (any status) and all employees (any status). An individual who is found to have committed sexual harassment in violation of this policy is subject to the full range of University discipline, up to and including termination of employment or expulsion. The University will provide persons who have experienced sexual harassment with ongoing remedies as reasonably necessary to restore or preserve access to the University’s education program and activities.  Inquiries concerning the specific application of Title IX at Ball State should be directed to Ms. Katie Slabaugh, Associate Dean of Students/Title IX Coordinator in the Frank A. Bracken Administration Building, room 238, 765-285-1545, kslabaugh@bsu.edu. Persons can also contact the U.S. Department of Education Office for Civil Rights, Washington, D.C. 20202-1328, 1-800-421-3481, ocr@ed.gov. | |
| **Diversity Statement** | Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our [**Beneficence Pledge**](https://www.bsu.edu/about/administrativeoffices/student-conduct/policiesandprocedures/beneficence) and through university resources found at [**http://cms.bsu.edu/campuslife/multiculturalcenter**](http://cms.bsu.edu/campuslife/multiculturalcenter). | |
| **The Learning Center** | The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State.  Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. Unvaccinated students are required to wear masks and practice physical distancing in the Learning Center.  To make an appointment, visit my.bsu.edu and click on “TutorTrac” in the Additional Tools section, or just go directly to [**https://ballstate.go-redrock.com**](https://ballstate.go-redrock.com/).  Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services.  Tests may be administered in the Learning Center.  Supplemental Instruction is available in select courses.  If you have an SI leader for your course, that person will provide students with information the first week of school regarding weekly study sessions.  For more information about all of our programming, visit [**bsu.edu/learningcenter**](https://www.bsu.edu/academics/collegesanddepartments/universitycollege/learningcenter) or call 765-285-1006. | |
| **The Writing Center** | All writers improve with practice and feedback, so as a student in this course, you are encouraged to use the Writing Center (in Robert Bell 295, Bracken Library, or online) to get additional feedback on your writing. To schedule a free appointment to discuss your writing, go to [**www.bsu.edu/writingcenter**](http://www.bsu.edu/writingcenter). Online and in-person appointments are available seven days a week; however, plan ahead because appointments book quickly! | |
| **Syllabus Change Policy** | This syllabus is a guide to the course and may be subject to change with reasonable advanced notice as course needs arise. | |