

Crook County School District

where students dream, learn, & succeed



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<u>Course:</u> Honors Biology – Bio 101 & 102 - EOU		<u>Email:</u> jessica.mumm@crookcountyschools.org
☒	Trimester #1	<u>Phone:</u> 541-416-6900 ext 3131
☒	Trimester #2	<u>Methods for Communicating with Families:</u> • Email • Phone Call • Google Classroom • Class Website
☐	Trimester #3	

If you do not qualify for credit cost coverage, your cost will be: High School Dual Credit taken from your high school – \$40 a credit

Course Description:

This course is an introduction to biology. The second of three consecutive courses, the first quarter will cover basic inorganic and organic chemistry, cell biology, cellular respiration, photosynthesis, and genetics. The second quarter will cover Molecular Genetics, Evolution, Selection, Speciation, Classification, and Survey of Animal and Plant Phyla. This course is designed as an introduction to biology, and as such, we will cover many topics but will not go into great detail when investigating these subjects. The course will, however, provide you with the background and basic understanding of biology that allow you to explore these topics further. The course instructor is here to help guide you through the large amount of material covered in this class, but it is **imperative** that you, the student, take an active role in this course. You need to spend a minimum of six hours per week reading, studying, and preparing for exams. There are many resources available to aid you in this task. First, the faculty member is a valuable tool for clarifying concepts and answering questions. Your text is a well-written and important resource. The library and librarians are also a great help in finding more information on topics of interest. DO NOT rely on websites (especially Wikipedia!) to have accurate information. Use all these tools!

Biol 101 is the first quarter of a year-long course covering the introduction to Biology. This course is an integrated study of biology including a discussion of the nature of science, evolution, cell biology, genetics, physiology and ecology of plants and animals, including humans.

Biol 102 is the second quarter of a year-long course covering the introduction to Biology. This course is an integrated study of biology including a discussion of the nature of science, evolution, cell biology, genetics, physiology and ecology of plants and animals, including humans.

This course has three primary aims:

- These courses satisfy the mission of General Education by emphasizing critical thinking skills, analysis, problem-solving, and aesthetic appreciation of the biological world, and by addressing the impact of biology at all levels of human study.
- The components of General Education met by these courses is Natural, Mathematical, and Information

Sciences

- Specific **GENERAL EDUCATION OUTCOMES** that these courses address and how the outcomes are assessed about student achievement:
 - Content Knowledge: Demonstrate increased vocabulary, content, and conceptual knowledge in a breadth requirement
 - Critical Thinking: Identifies and explains issues, recognizes contexts and assumptions, acknowledges multiple perspectives, evaluates evidence to conclude
 - Problem Solving and Analytical Thinking: Demonstrate the capacity to investigate/define a problem, reflect on/interpret a problem, solve through analysis, synthesis, and/or application

Learning Standards/Targets:

NOTE: It is anticipated that the student's mastery of these learning outcomes will be reflected in the grade a student has received; an A student will have mastered all or most, while a C student will have mastered proportionately less, and a D/F student will show little or no mastery of these outcomes.

Bio 101:

At the end of this course, you should be able to:

- Develop an understanding of what science is and how the process of science is done
- Be able to describe the structure of and solve simple problems relating to atoms, molecules, and macromolecules
- Understand the macromolecular organization of the cell, its structure, and the overall function of its major components
- Understand how the lipid bilayer contributes to and is responsible for maintaining the intracellular environment
- Be able to describe in a general way how cells obtain, store, and use energy via glycolysis, aerobic respiration, fermentation, and photosynthesis
- Understand the Mendelian principles of dominant/recessive relationships, segregation, and relationship of the gene to phenotype; and, importantly, APPLY these principles to solving problems related to them
- Understand cellular reproduction, both mitosis and meiosis and have a conceptual understanding of the abnormality of this process associated with cancer

Brief Lecture Schedule

Chapter 1– Introduction to Biology

Chapter 2a –Chemistry of Life: Building blocks

Chapter 2b– Chemistry of Life: Biological Molecules

Chapter 3a – Cell Structure and Function

Exam 1

Chapter 3b– Cell Membrane and Transport

Chapter 4a and b– How Cells Obtain Energy

Chapter 5: Photosynthesis

Exam 2

Chapter 6 – Reproduction at the Cellular Level

Chapter 7 - The Cellular Basis of Inheritance

Chapter 8 – Patterns of Inheritance

Exam 3

Lecture Exams

Lecture exams will consist of true/false, matching, fill in the blanks, and ordering questions. There will also be several short essay questions.

Bio 102:

At the end of this course, you should be able to:

- Be able to describe, and solve simple problems related to, the flow of information at a molecular level in the cell, including the processes of replication, transcription, and translation
- Have a general understanding of the control of gene expression and how it differs between prokaryotes and eukaryotes
- Understand and critically analyze Darwin's view of evolution by natural selection, and how more recent contributions, most notably an understanding of genetics, have altered, affected, or modified how we think of evolutionary processes
- Be able to critically compare the tenets of our current understanding of evolution with the claims of literal creationists and determine which viewpoint is supported by the scientific evidence by discussion of that evidence, and ask whether creationism in any form is science
- Apply an understanding of mutation and other genetic changes, as well as adaptation and selection, to discussing speciation and the rate of formation of new species
- Understand and apply species concepts, ecological and geographical data, and biochemical features to an understanding of classification, including cladistic methods
- Have an aesthetic appreciation of the diversity of invertebrate animal life on Earth
- Be able to relate body plan and design of animals to cladistic analysis of animal phyla

Brief Lecture Schedule

Chapter 9a - Molecular Biology

Chapter 9b – Gene Regulation

Chapter 10a – Cloning

Chapter 6b – Cancer

Chapter 10b – Biotechnology

Exam 1

Chapter 11a – Evolution and its Processes

Chapter 11b – Speciation

Chapter 12 – Diversity of Life and Tracing Evolutionary History

Exam 2

Chapter 13a - Microbial Life and Protists

Chapter 13b – Diversity of Fungi

Chapter 14 – Diversity of Plants

Chapter 15a - Diversity of Invertebrate

Exam 3

Lecture Exams

Lecture exams will consist of true/false, matching, fill in the blanks, and ordering questions. There will also be several short essay questions.

Units Covered:

- Introduction to Biology
 - *Develop an understanding of what science is and how the process of science is done*
- Chemistry of Life:
 - *Be able to describe the structure of and solve simple problems relating to atoms, molecules, and macromolecules*
- Cell Structure and Function
 - *Understand the macromolecular organization of the cell, its structure, and the overall function of its major components*
- Cell Membrane and Transport
 - *Understand how the lipid bilayer contributes to and is responsible for maintaining the intracellular environment*
- How Cells Obtain Energy
 - *Be able to describe in a general way how cells obtain, store, and use energy via glycolysis, aerobic respiration, fermentation, and photosynthesis*
- Photosynthesis
 - *Be able to describe in a general way how cells obtain, store, and use energy via glycolysis, aerobic respiration, fermentation, and photosynthesis*
- Reproduction at the Cellular Level
 - *Understand cellular reproduction, both mitosis and meiosis and have a conceptual understanding of the abnormality of this process associated with cancer*
- The Cellular Basis of Inheritance
 - *Understand the Mendelian principles of dominant/recessive relationships, segregation, and relationship of the gene to phenotype; and, importantly, APPLY these principles to solving problems related to them*
- Patterns of Inheritance
 - *Understand the Mendelian principles of dominant/recessive relationships, segregation, and relationship of the gene to phenotype; and, importantly, APPLY these principles to solving problems related to them*
- Molecular Biology
 - *Be able to describe, and solve simple problems related to, the flow of information at a molecular level in the cell, including the processes of replication, transcription, and translation.*
- Gene Regulation
 - *Understand the control of gene expression and how it differs between prokaryotes and eukaryotes*
- Cloning
 - *Understand the mechanisms behind cloning, the implications for the field of science, and the repercussions of cloning in society.*
- Cancer
 - *Understand cellular reproduction, both mitosis, and meiosis, and have a conceptual understanding of the abnormality of this process associated with cancer.*
 - *Understand the formation of cancer, the implications for the body, and the treatment options.*
- Biotechnology
 - *Understand the process of biotechnology, the benefits, and the controversies. Be able to identify the different career paths in the field.*
- Evolution and its Processes
 - *Understand and critically analyze Darwin's view of evolution by natural selection, and how more*

recent contributions, most notably an understanding of genetics, have altered, affected, or modified how we think of evolutionary processes

- Speciation
 - *Be able to critically compare the tenets of our current understanding of evolution with the claims of literal creationists and determine which viewpoint is supported by the scientific evidence by discussing evidence, and ask whether creationism in any form is science*
- Diversity of Life and Tracing Evolutionary History
 - *Apply an understanding of mutation and other genetic changes, as well as adaptation and selection, to discussing speciation and the rate of formation of new species*
 - *Understand and apply species concepts, ecological and geographical data, and biochemical features to an understanding of classification, including cladistic methods*
- Diversity of Invertebrate
 - *Have an aesthetic appreciation of the plant and invertebrate diversity on Earth*
 - *Be able to relate the body plan and design of animals to the cladistic analysis of animal phyla*

Instructional Materials:

- Core Texts: <https://openstax.org/details/books/concepts-biology> .
- Films, Videos/Other Electronic Media: Crash Course Biology-biology PlayList, Khan Academy videos, virtual dissections, virtual microscope slides (online), & Elec2ric Learning biology-related videos (YouTube), Forensic Files Season 13 Episode 25 (DNA Profiling section)
- Novels: N/A
- Other Supplementary Curriculum (Articles, etc.): Current Event articles about the scientific topic being studied at that time. (Selected from reputable science journals)
- Planned Guest Speakers: N/A

All Instructional Materials must comply with CCSD School Board [Policy IIA](#) & [Policy IIA-AR](#). A copy of core and supplemental curriculum will be available in the curriculum office for review.

A classroom teacher receiving a complaint regarding instructional materials shall try to resolve the issue informally through the discussion of the original assignment or the opportunity for an alternative assignment.

Notification of the Right to Object to the Use of Material:

Any resident of the district may raise objection to instructional materials used in the district's educational program despite the fact that the individuals selecting such materials were duly qualified to make the selection and followed the proper procedure and observed the criteria for selecting such material.

The first step in expressing objection to materials is consultation with the classroom teacher or library staff and providing a written complaint. The district official or staff member initially receiving a complaint shall explain to the complainant the district's selection procedure, criteria and qualifications of those persons selecting the material. A classroom teacher receiving a complaint regarding instructional materials shall try to resolve the issue informally through the discussion of the original assignment or the opportunity for an alternative assignment. The materials shall remain in use unless removed through the procedure in section 4. F. (2) of this regulation.

The teacher or library staff receiving the initial complaint shall advise the principal of the initial contact within 24 hours, whether or not the complainant has apparently been satisfied by the initial contact. A written record of the contract shall be maintained by the principal and sent to the superintendent's office.

In the event that the person making an objection to material is not satisfied with the initial explanation or an alternative assignment, the person raising the questions will meet with a building administrator who will provide a Request for Reconsideration form. For more details, see [CCSD School Board Policy IIA-AR](#).

Citizenship, Classroom Rules, Behavior Expectations:

- *The Board expects student conduct to contribute to a productive learning climate. Students shall comply with the district's policies, administrative regulations, school and classroom written rules, pursue the prescribed course of study, submit to the lawful authority of teachers and school officials and conduct themselves in an orderly manner during the school day and during district-sponsored activities.*

Careful attention shall be given to procedures and methods whereby fairness and consistency without bias in discipline shall be assured to each student. The objectives of disciplining any student must be to help the student develop a positive attitude toward self-discipline, realize the responsibility of one's actions and maintain a productive learning environment.

- See [CCSD Board Policy JFC](#) for more details.

Class Expectations

- *Students are expected to be present and active members of the classroom every day.*
- *Students are expected to come to class prepared with all necessary materials and completed assignments to learn and participate in all lectures and activities.*
- *Students are expected to be respectful of the teacher, the classroom, and their peers.*

Class Discipline

Students who are not acting present, coming prepared, and being respectful will earn one of the following consequences:

- *Warning in class*
- *Teacher/Student conference during or after class AND parent contact*
- *Lunch detention AND parent contact*
- *Written referral and sent to the office during activity/lab AND parent contact*

Any student caught cheating on an assignment will receive a zero and be referred to the Principal. There will be a makeup assignment created in the case of cheating, that will need to be completed to make up for the assignment/assessment that the student was caught cheating on.

As this is an Honors/college class:

*CCHS places a high value on the integrity of its student scholars. In addition, realize that all work you turn in **MUST** be your original work. All answers and writing must be your own. Any writing you include that was not yours from any source must be in quotations and attributed to the original author. I expect however that you will not use other's words but your own. If you read something that can answer a question, use your own words to explain that answer. Any use of wording, be it a paragraph, sentence, or phrase, from another's work, is considered plagiarism and will result in academic misconduct, a failing grade on the assignment, and potentially a failing grade for the course. **Do not plagiarize!***

Grading System:

- *The district's grading system shall be based on Board-adopted course content and is designed to enable the student and parent to clearly know how well the student is achieving course requirements at the student's current grade level or course content level, and be based on the student's progress toward mastery of a continuum of knowledge and skills outlined in Oregon State Standards. Absenteeism or misconduct shall not be the sole criterion for the reduction of students' grades. Behavioral performance shall be reported separately. The district will use letter grades (A,B,C,D,F) that can be converted into a 4 to 0 reporting system in grades 6-12. All AP courses are graded on a 5.0 grading scale.*
- *Grades will be based on many factors, such as: basic instructional assignments, both oral and written; results from various assessment instruments, including critical content short cycle assessments as well as quizzes and exams; class participation; special assignments; research; activities of various types of kinds and special contributions.*
- See CCSD School Board [Policy IKA](#), [Policy IK](#), & [Policy IK-AR](#) for more details.

Grading Scale:

- A+: 100-98 A: 97-93 A-: 92-90
- B+: 89-88 B: 87-83 B-: 82-80
- C+: 79-78 C: 77-73 C-: 72-70
- D+: 69-68 D: 67-63 D-: 60-62
- F: 59-0

Course Grading Criteria/Weighting

- Assessment, Projects, Quizzes, Assessments of Learning Standards: 80% → (50% Tests, 20% Labs, 10% Projects)
- Notebooks & Practice Assignments: 20%

Grades will be derived from a combination of the following:

- Daily Openers → These are graded daily, and a weekly total gets put into the gradebook. The openers can be corrected up until Friday each week. The openers will be deleted as the total scores are entered into the gradebook. **AGAIN YOU HAVE UNTIL FRIDAY OF EACH WEEK TO FIX AND COMPLETE OPENERS.**

- Daily Assignment/Homework
- Lab Work
- Projects
- Presentations
- Quizzes
- Exams
- Notebooks

AS THIS IS A COLLEGE COURSE:

- You will have two grades: one for high school and one for college.
 - Your high school grade consists of everything we do and you can retake assessments to improve your grades.
 - Your college grade consists **ONLY** of your exam scores and you can **NOT** retake assessments to improve your grade.

**[Policy IK-AR](#): Achievement of learning standards will be assessed separately from behavior.*

Make Up Policy:

- 1) **Assessment Retakes:** [Policy IK-AR](#) Teachers will provide students with multiple opportunities to demonstrate mastery of each standard. Students will be provided with at least two opportunities to retake assessments. A student who retakes an assessment will not be penalized. Teachers can modify assessments (more rigorous to account for greater time allowed for preparation.) Teachers will determine student requirements for assessment retakes that align with Policy IK-AR.
- 1) **Homework/Daily Work:** Achievement of learning standards will be assessed separately from behavior (i.e. attendance, disruption, late work, tardiness, preparation, effort, attitude, etc.). Teachers may set guidelines around submission timelines, as this category is tied to learning progress, please refer to policy IK-AR. → Students will have 2 weeks from the due date of an assignment to turn in the assignment for credit. **There is a 10% deduction on late work, as this is an Honors course and is designed to be rigorous.**

**For all courses that articulate with a college or university, it is required that the syllabi match the accrediting institution, rather than the CCSD syllabus model.*

Student Name: _____

Student Signature: _____

Parent Signaure: _____