Curriculum Committee Meeting Agenda

Voting Committee Members

Chair – Kristen Booth (Pre-College)
Vice Chair – Todd Meislahn (Business)

Tyson Aldrich (Tech/Trade)
Andrea Chrisman (Science)
jessamyn duckwall (Art/Com)
John Evans (Math)
Anne Kelly (Inst Dean/Dir)
Mimi Pentz (Nurs/Hlth Occ)
Stephen Shwiff (Soc Sci/Ed)

Non-Voting Committee Members

Jarett Gilbert (VP Instructional Services)
Susan Lewis (Curriculum)
Cat Graham (Student Services)

Support Staff

Sara Wade (Instructional Services)

Guests

Emilie Miller

April 9, 2026 3:30 – 4:15 pm
The Dalles Campus, room 1.162 (Board Room, Building 1 next to cafe)
Join Zoom Meeting: https://cgcc.zoom.us/j/89675227929 (members are requested to turn their cameras on)

Old Business:

1. Revised curriculum submission format – continued from 10.09.25 (postponed to Retreat)
2. Inclusion of successful completion of the Aviation Licensure Exams as part of degree requirements (postponed – Tyson will contact FAA rep to gather more information and data.)

Submissions [1]

1. Emilie Miller (3:35 – 4:00 pm)
    - BI 221Z Principles of Biology: Cells (New LDC Course: CCN)
        i. BI 221Z Gen Ed Request
    - BI 222Z Principles of Biology: Organisms (New LDC Course: CCN)
        i. BI 222Z Gen Ed Request
    - BI 223Z Principles of Biology: Ecology and Evolution (New LDC Course: CCN)
        i. BI 223Z Gen Ed Request

New Business

1. None

Discussion Items

1. None

Next Meeting: May 29, 2026 – Curriculum Committee Retreat at the HRC, 9am-12noon

Attachments: [1] Submissions: 3 New LDC Course; 3 Gen Ed Requests

CC date 4.9.26
CC decision _____
CC vote _____

Columbia Gorge Community College

New Course
Lower Division Collegiate (LDC)

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL INFORMATION

Department:	Science	Submitter name: phone: email:	Emilie Miller 503-329-8118
Prefix and Course Number:	BI 221Z	Credits:	5
Course Title: (75 characters max, including spaces)	Principles of Biology: Cells		
May this course be repeated for credit?	☐ Yes ☒ No	For how many times total?	Contact hours: Lecture: 40 Lec/lab: 0 Lab: 30
Reason for the new course	Updating Course Numbers for Improved Transferability to Oregon Colleges and Universities – CCN course		

GRADE OPTIONS: Check as many or as few options as you'd like. **Choose the default grade option** which will automatically be assigned for students who do not make a grade option choice when registering for classes.

	Check all that apply	Default (Choose one)
A-F (letter grade)	☒	☒
Pass/No pass	☒	☐
Audit in consultation with faculty	☒	☐

Is this course equivalent to another? If yes, they must have the same description and outcomes.	☐ Yes ☒ No	Course Number and Title

SECTION #2 REQUISITES: PLACEMENT INTO, PRE, CO AND CONCURRENT

Note: if this course is requesting approval for the Gen Ed list, it will have, as a default, the following standard requisites: Prerequisite: placement into MTH 65 or MTH 98. Prerequisite/concurrent: WR 121. Higher levels of any of these prerequisites, or additional prerequisites can be requested. However, if the department wants to set the WR and/or MTH prerequisites at a lower level, you will need to use the Prerequisite Opt-out form available on the Curriculum website.

☒ Standard requisites – Prerequisite: placement into MTH 65 or MTH 98.
Prerequisite/concurrent: WR 121Z.

☐ Placement into:		☐ Placement into:		
course prefix & number:		☐ Prerequisite	☐ Corequisite	☐ pre/co
course prefix & number:		☐ Prerequisite	☐ Corequisite	☐ pre/co
course prefix & number:		☐ Prerequisite	☐ Corequisite	☐ pre/co

SECTION #3 COURSE DESCRIPTION, OUTCOMES, AND CONTENT	
COURSE DESCRIPTION: To be used in the catalog and schedule of classes. Begin each sentence of the course description with an active verb. Avoid using the phrases: "This course will …" and/or "Students will ..." Include course requisites in the description. Guidelines for writing concise descriptions can be found at Writing Course Descriptions.	
Explores fundamental biological concepts and theories about the cellular and molecular basis of life including cell structure and function, metabolism, genetic basis of inheritance and how information flows from DNA to proteins, with a focus on the iterative process of science. Intended for science majors. Prerequisites: Placement into MTH 65 or MTH 98. Prerequisite/concurrent: WR 121Z. Audit available	
LEARNING OUTCOMES: Describe what the student will be able to do "out there" (in their life roles as worker, family member, community citizen, global citizen or lifelong learners). Outcomes must be measurable through the application of direct and/or indirect assessment strategies. Three to six outcomes are recommended. Start each outcome with an active verb, completing the sentence starter provided. (See Writing Learning Outcomes on the curriculum website.)	
Outcomes: (Use observable and measurable verbs)	Upon successful completion of this course, students will be able to:
	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.
	2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.
	3. Describe the structure and related functions of major classes of biomolecules.
	4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts.
	5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter.
	6. Articulate how cells store, use, and transmit genetic information.
	7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution.
Outcomes assessment strategies:	• Open-ended essay questions and multiple-choice exams • Scientific papers that follow standard scientific format presenting independent investigations and may include peer-review(s) • Oral presentations of biological information, informed positions on contemporary issues, and/or laboratory results • Classroom assessments, such as, quizzes, one-minute summaries, pre-test/post-tests, etc. • Major independent projects, such as, experiential learning plus journals, botany collections with ecosystem reports, library research term papers, and field journals. • Scientific article critiques • Laboratory practical exams • Small projects and homework assignments.

COURSE CONTENT, ACTIVITIES AND DESIGN	
Activity & Design: The determination of teaching strategies used in the delivery of outcomes is generally left to the discretion of the instructor. On occasion, a department may decide that the inclusion of a particular strategy will be required (specify in "required activities" box below). For example, a department may determine that a course will be required to incorporate a service learning project into its curriculum delivery. However, for the most part, delivery mechanisms fall under academic freedom and so the individuality and creativity of each instructor. Here are some strategies that you might consider when designing your course: lecture, small group/forum discussion, flipped classroom, dyads, oral presentation, role play, simulation scenarios, group projects, service learning projects, hands-on lab, peer review/workshops, cooperative learning (jigsaw, fishbowl), inquiry-based instruction, differentiated instruction (learning centers), graphic organizers, etc.	
Department required course activities (optional):	
Course Content – organized by outcomes (list each outcome followed by an outline of the related content):	**Outcome #1:** Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. • Read scientific literature • Apply the scientific method • Use laboratory techniques and equipment • Locate and access biological information • Think critically • Collaborate with peers -- work effectively in groups • Articulate scientific processes in written and oral format • Present data in papers using the scientific format • Present conclusions logically **Outcome #2:** Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. • Read scientific literature • Apply the scientific method • Use laboratory techniques and equipment • Locate and access biological information • Think critically • Collaborate with peers -- work effectively in groups • Articulate scientific processes in written and oral format • Present data in papers using the scientific format • Present conclusions logically **Outcome #3:** Describe the structure and related functions of major classes of biomolecules. • Basic chemistry • How properties of water affect living things • Basic organic chemistry • Functional characteristics of organic macromolecules

	Outcome #4: Differentiate cell components and their functions, emphasizing them as a system of interacting parts. • Cell microanatomy • Membrane structure and function **Outcome #5:** Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter. • Biochemical pathways and enzymes • Aerobic and anaerobic cellular respiration • Photosynthesis **Outcome #6:** Articulate how cells store, use, and transmit genetic information. • Binary fission and mitosis • Meiosis and sexual life cycles • Introduction to genetics including Mendelian genetics **Outcome #7:** Explain how mutation and genetic recombination contribute to phenotypic variation and evolution. • Gene expression in eukaryotes (optional) • DNA technology
Suggested Texts & Materials (specify if any texts or materials are required):	• Life: The Science of Biology Vol. 1 (Any Edition Past 8th) David E. Sadava, David M. Hillis, H. Craig Heller and May Berenbaum • Other: https://openstax.org/details/books/biology-2e
Department Notes: (optional)	Columbia Gorge Community College Science Department stands by the following statement regarding science instruction: Science is a fundamentally nondogmatic and self-correcting investigatory process. Theories (such as biological evolution and geologic time scale) are developed through scientific investigation are not decided in advance. As such, scientific theories can be and often are modified and revised through observation and experimentation. "Creation science", "Intelligent design" or similar beliefs are not considered legitimate science, but a form of religious advocacy. This position is established by legal precedence (Webster v. New Lenox School District #122, 917 F. 2d 1004). The Science Department at Columbia Gorge Community College, therefore stands with organizations such as the National Association of Biology Teachers in opposing the inclusion of pseudo-sciences in our science curricula except to reference and/or clarify its invalidity.

SECTION #4 TRANSFERABILITY
Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state requires us to certify that at least one Oregon university will accept our new LDC course in transfer. To ensure the quality of our transfer programs and to provide students with the best information on how individual courses will transfer, we require faculty to

ascertain the transferability of a proposed course by communicating with colleagues at a minimum of three Oregon universities, asking the following questions. 1. Is there an equivalent lower division course at the university? 2. Will a department accept the course for its major or minor requirements? 3. Will the course be accepted as part of the University's distribution requirements? While you may contact any Oregon university, we recommend, based on CGCC student transfer history, that you conduct transferability screening with OSU, PSU and EOU as these are the more common destinations of CGCC transfer students. If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course.	
Which Oregon universities will the course transfer to? List all	All public OR universities
How does it transfer? Check all that apply	☒ Required or support for major ☒ General education distribution requirement ☐ General elective ☐ Other (provide details)
Provide evidence of transferability from three or more universities. Recommended universities based on CGCC transfer history: OSU, PSU and EOU	☐ Completed Transferability/Articulation of Individual CGCC Courses form ☒ Other – describe: CCN course so transferable to all public Oregon universities
Identify comparables at Oregon community colleges; list college, course prefix, number and title.	BI 221Z Principles of Biology: Cells - CCN
Are special designations being sought at this time?	☒ General Education – Discipline specific Gen Ed form required. ☐ Cultural Literacy – Cultural Literacy designation request form required. (Cultural Literacy designation requires that the course has a Gen Ed designation.)

SECTION #5 ADDITIONAL INFORMATION FOR NEW LDC COURSES		
Is this course in a degree or certificate as required, an elective or a prerequisite? Please provide details.		
Name of certificate(s):		# credits:
Name of degree(s):	All degrees	# credits: 90-108
Briefly explain how this course fits into the above program(s), i.e. requirement or elective:	Elective – Natural Science w/ Lab elective: • AAOT • Associate of Science (AS) • AAOT: Elementary Education • Associate of Science Transfer: Computer Science • Associate of Science Transfer: Business • Associate of Arts Transfer: English • All AAS degrees other than Nursing and Paramedic Required course: • Nursing AAS • Paramedic AAS	
Impact on other Programs and Departments		

Are there similar courses existing in other programs or disciplines at CGCC? If yes, explain and/or describe the nature of acknowledgements and/or agreements that have been reached.	No BI 221Z will be taught the same as the previous course BI 211. The course is being updated so that it will transfer to Oregon universities and colleges.
Have you consulted with the Department Chair(s) of other program(s) regarding potential impact such as content overlap, duplication, prerequisites, enrollment impact etc. Explain and/or describe the nature of acknowledgements or agreements reached.	Yes
Has the Library director been notified regarding the addition of this course and the need for any potential resources?	☒ Yes – date: 3.9.26 ☐ No
Implementation term:	☒ Start of next academic year (summer term) ☐ Specify term (if BEFORE start of next academic year):
Allow 1-2 months to complete the new course approval process before the course can be scheduled. The Curriculum Office will notify the submitter, department chair, and department director when the course has completed the approval process and is available to be scheduled. Curriculum changes generally go into effect at the beginning of the next academic year (summer term). Mid-year revisions/additions are discouraged but accommodated when possible if there is a specific, identifiable need.	

SECTION #6 DEPARTMENT REVIEW

"I vouch that this submission has been reviewed by the affiliated department chair and department dean/director and that they have given initial authorization for this submission. I am requesting that it be placed on the next Curriculum Committee agenda with available time slots. I understand that I am required to complete and submit, prior to the day my submission is reviewed by the Curriculum Committee, a Course Signature Form signed by the department chair and dean/director."

Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	3/6/2026
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarrett Gilbert		

NEXT STEPS:

1. Save this document as the course prefix and number (e.g. MTH 65 or HST 104). Send completed form electronically to curriculum@cgcc.edu or slewis@cgcc.edu.

CC date 4.9.26
CC decision _____
CC vote _____

Columbia Gorge Community College

General Education/Discipline Studies List Request Form

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL & COURSE INFORMATION:			
Department	Science	Submitter Name: Phone: Email:	Emilie Miller 503-329-8118 Emiller@cgcc.edu
Course Prefix and Number:	BI 221Z	Course Title:	Principles of Biology: Cells
Course Credits:	5	Gen Ed Category:	☐ Arts and Letters ☐ Social Science ☒ Science, Comp. Sci., and Math
Course Description:	Explores fundamental biological concepts and theories about the cellular and molecular basis of life including cell structure and function, metabolism, genetic basis of inheritance and how information flows from DNA to proteins, with a focus on the iterative process of science. Intended for science majors. Prerequisites: Placement into MTH 65 or MTH 98. Prerequisite/concurrent: WR 121Z. Audit available.		
Course Outcomes:	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Describe the structure and related functions of major classes of biomolecules. 4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts. 5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter. 6. Articulate how cells store, use, and transmit genetic information. 7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution.		

Lower Division Collegiate (LDC) courses that apply for General Education/Discipline Studies status must:

1. **Be available to all CGCC students who meet the prerequisites for the course.**
2. **Ensure that the appropriate AAOT Discipline Studies outcomes and criteria are reflected in the course's outcomes.** (If you need to revise your course outcomes, you must complete a Course Revision form.)
3. **Verify course transfer status using the Course Transfer/Articulation Status form (available on the curriculum website).** In order to obtain general education status, at least three Oregon universities must confirm the course will transfer.
4. **Have the Standard Prerequisites unless the Department Chair has completed the Prerequisite Opt-Out form and that request is approved.**
5. **Be an LDC course that is eligible for the AAOT Discipline Studies List.**

In addition, course content must address the following:

1. **CGCC's General Education Philosophy Statement:** *Through a broad, well-balanced curriculum, the General Education program strives to instill a lifelong love of learning and to foster civic competence within our students.*
2. **CGCC Institutional Learning Outcomes (ILO):**

Through their respective disciplines, CGCC students who earn a degree can:

1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (*Communication*)
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*)
3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*)
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (*Cultural Knowledge and Competence)*
5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*)

Course outcomes and content are required, at a minimum, to demonstrate that ILOs 1 (*Communication*) and 2 (*Critical Thinking and Problem Solving*) are addressed as having a "major designation," and at least one additional ILO is addressed as having a "minor designation."

Major Designation:

1. The outcome is addressed recurrently in the curriculum, regularly enough to establish a thorough understanding.
2. Students can demonstrate and are assessed on a thorough understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

Minor Designation:

1. The outcome is addressed adequately in the curriculum, establishing fundamental understanding.
2. Students can demonstrate and are assessed on a fundamental understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

To establish an intentional learning environment, Institutional Learning Outcomes (ILOs) require a clear definition of instructional strategies, evidence of recurrent instruction, and employment of several assessment modes.

SECTION #2 ADDRESS CGCC INSTITUTIONAL LEARNING OUTCOMES:	
For each ILO addressed, provide the following: 1) list the course outcome(s) that clearly reflects the ILO; 2) describe relevant course content, outlining how students will gain the skills and knowledge needed to achieve a level of mastery of the ILO; and 3) describe at least one assessment strategy that can be assessed by applying the appropriate ILO rubric.	
Gen Ed designated courses are required to address ILOs 1 and 2 as having a "major designation."	
1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (*Communication*)	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 3. Describe the structure and related functions of major classes of biomolecules.

☒ major designation **REQUIRED**	4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts. 5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter. 6. Articulate how cells store, use, and transmit genetic information. 7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution. **Content:** Communication is an important tool in health and other related sciences. Through conducting topical research relevant to the above outcomes while engaging with their peers, students learn to better listen to one another and better communicate verbally. Written assignments (labs, homework, and even exams) allow students to demonstrate written communication. The above topics are addressed serially through the course. Each assignment, oral or written, receives peer and/or instructor feedback based upon grading rubrics including direction on how to improve future communication of that type. In this way, students are taught how to write increasingly more effective communication through the varying oral or written assignments (e.g. lab reports). **Outcome Assessment Strategies:** Open-ended essay questions and written exams. Laboratory write-ups and oral presentations.
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*) ☒ major designation **REQUIRED**	**Course Outcomes:** 3. Describe the structure and related functions of major classes of biomolecules. 4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts. 5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter. 6. Articulate how cells store, use, and transmit genetic information. 7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution. **Course Content:** Students will learn how to solve problems using research, relevant scientific methods and reflection on the process. By learning about these topics, students will gain knowledge to help them be more creative when solving problems in the workplace and their lives. **Outcome Assessment Strategies**: Homework and laboratory assignments.
Provide a response for each of the following three ILOs that your course addresses. At a minimum, Gen Ed designated courses are required to address one of these three as at least a "minor designation". While the Gen Ed designation only requires one additional ILO, please provide a response for all applicable ILOs, "minor" or "major."	

3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*) Check one: ☒ major ☐ minor ☐ not addressed significantly	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific biomolecules. **Course Content:** Laboratory assignments allow students to apply the scientific method to solve problems. Students analyze their data to determine cause and effect relationships in the lab setting. They understand the impact the nature of how a lab was conducted and relate it to the results they had. **Outcome Assessment Strategies:** Laboratory assignments.
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (*Cultural Awareness*) Check one: ☐ major ☐ minor ☒ not addressed significantly	Course Outcomes: Course Content: Outcome Assessment Strategies:
5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*) Check one: ☐ major ☒ minor ☐ not addressed significantly	**Course Outcomes:** 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. **Course Content**: Students will identify, and evaluate current and evolving research and theories as they apply to themselves, their family and our society. Students address impact on the environment the natural world. Understanding the implication of human activity on the environment is important as a citizen making informed choices on how their actions impact the world. **Outcome Assessment Strategies**: Homework and exam essay questions.

SECTION #3 ADDRESS THE AAOT DISCIPLINE STUDIES OUTCOMES AND CRITERIA:
Complete only the questions regarding outcomes and criteria for the category to which your course belongs - Art and Letters; Social Sciences; Science and Computer Science; or Mathematics.
Science or Computer Science
Outcomes:
As a result of taking General Education Science or Computer Science courses, a student should be able to:

- Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions;
- Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner; and
- Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

Criteria:

A General Education course in either Science or Computer Science should:

1. Analyze the development, scope, and limitations of fundamental scientific concepts, models, theories, and methods.
2. Engage students in problem-solving and investigation, through the application of scientific and mathematical methods and concepts, and by using evidence to create and test models and draw conclusions. The goal should be to develop analytical thinking that includes evaluation, synthesis, and creative insight.
3. Examine relationships with other subject areas, including the ethical application of science in human society and the relevance of science to everyday life.

In addition:

4a. A General Education course in Science should engage students in collaborative, hands-on and/or real-life activities that develop scientific reasoning and the capacity to apply mathematics and that allow students to experience the exhilaration of discovery.

4b. A General Education course in Computer Science should engage students in the design of algorithms and computer programs that solve problems.

List the course outcome(s) from the course's CCOG that clearly reflect the above outcomes and criteria.*	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Describe the structure and related functions of major classes of biomolecules. 4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts. 5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter. 6. Articulate how cells store, use, and transmit genetic information. 7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution.

***Note:** It must be clearly evident that the above outcomes are addressed within the course's outcomes. Between your answers to the three outcomes questions below, you also need to address all of the first three criteria as well as the appropriate fourth criterion.

How does the course enable a student to "gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and	In the lab, the students pre-read the laboratory and take a pre-lab quiz before class to ready them for the activity for the day. They will then create a hypothesis preceding the lab. The lab is conducted and the students then comprehend their data and results and make suggestions on how they would conduct a second trial of the lab.

solutions and generate further questions"?	
How does the course enable a student to "apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner"?	In lab, the students work collaboratively with a partner to plan, hypothesize, and conduct the lab. They are encouraged to talk with classmates and read handouts when encountering problems.
How does the course enable a student to "assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment"?	The first homework assignment asks students to select a scientific article and summarize than evaluate if the scientific was used. When we cover the chapter on photosynthesis, we evaluate the effects of global warming on the environment. The students also are asked to evaluate the positive and negative effects of biotechnology.

SECTION #4 DEPARTMENT REVIEW

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Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	3/7/2026
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarrett Gilbert		

NEXT STEPS:

1. Save this document as the course prefix and course number.gened (e.g. HST 104.gened). Send completed form electronically to curriculum@cgcc.edu or slewis@cgcc.edu.
2. Refer to the curriculum office website for the Curriculum Committee meeting schedule and submission deadlines. You are encouraged to send submissions prior to the deadline so that the curriculum office may review and provide feedback.
3. Submissions will be placed on the next agenda with available time slots, and you will be notified of your submission's estimated time for review. The Curriculum Office will send a signature page to your department chair and department dean/director that may be completed electronically. Signature pages must be received by the Curriculum Office the day before the Curriculum Committee meeting for which the submission is scheduled. Submissions without signed signature pages will be postponed.
4. It is not mandatory that you attend the Curriculum Committee meeting in which your submission is scheduled for review; however, it is strongly encouraged that you attend so that you may represent your submission and respond to any committee questions. Unanswered questions may result in a submission being rescheduled for further clarification.

Columbia Gorge Community College

CC date 4.9.26
CC decision _____
CC vote _____

New Course
Lower Division Collegiate (LDC)

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL INFORMATION				
Department:	Science		Submitter name: phone: email:	Emilie Miller 503-329-8118
Prefix and Course Number:	BI 222Z		Credits:	5
Course Title: (75 characters max, including spaces)	Principles of Biology: Organisms			
May this course be repeated for credit?	☐ Yes ☒ No	For how many times total?	Contact hours	Lecture: 40 Lec/lab: 0 Lab: 30
Reason for the new course	Updating Course Numbers for Improved Transferability to Oregon Colleges and Universities			

GRADE OPTIONS: Check as many or as few options as you'd like. **Choose the default grade option** which will automatically be assigned for students who do not make a grade option choice when registering for classes.

	Check all that apply	Default (Choose one)
A-F (letter grade)	☒	☒
Pass/No pass	☒	☐
Audit in consultation with faculty	☒	☐

Is this course equivalent to another? If yes, they must have the same description and outcomes.	☐ Yes ☒ No	Course Number and Title

SECTION #2 REQUISITES: PLACEMENT INTO, PRE, CO AND CONCURRENT

Note: if this course is requesting approval for the Gen Ed list, it will have, as a default, the following standard requisites: Prerequisite: placement into MTH 65 or MTH 98. Prerequisite/concurrent: WR 121. Higher levels of any of these prerequisites, or additional prerequisites can be requested. However, if the department wants to set the WR and/or MTH prerequisites at a lower level, you will need to use the Prerequisite Opt-out form available on the Curriculum website.

☐ Standard requisites – Prerequisite: placement into MTH 65 or MTH 98.
Prerequisite/concurrent: WR 121Z.

☐ Placement into:					☐ Placement into:				
course prefix & number:	BI 221Z	☒	Prerequisite	☐	Corequisite	☐	pre/co		
course prefix & number:		☐	Prerequisite	☐	Corequisite	☐	pre/co		
course prefix & number:		☐	Prerequisite	☐	Corequisite	☐	pre/co		

SECTION #3 COURSE DESCRIPTION, OUTCOMES, AND CONTENT	
COURSE DESCRIPTION: To be used in the catalog and schedule of classes. Begin each sentence of the course description with an active verb. Avoid using the phrases: "This course will …" and/or "Students will …" Include course requisites in the description. Guidelines for writing concise descriptions can be found at Writing Course Descriptions.	
Explores fundamental biological concepts and theories about the structure and function of diverse organisms (including plants and animals), evolution and development, transformation of energy and matter, and body systems at a multicellular organismal level. Intended for science majors. Prerequisites: BI 221Z. Audit available.	
LEARNING OUTCOMES: Describe what the student will be able to do "out there" (in their life roles as worker, family member, community citizen, global citizen or lifelong learners). Outcomes must be measurable through the application of direct and/or indirect assessment strategies. Three to six outcomes are recommended. Start each outcome with an active verb, completing the sentence starter provided. (See Writing Learning Outcomes on the curriculum website.)	
Outcomes: (Use observable and measurable verbs)	Upon successful completion of this course, students will be able to:
	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.
	2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.
	3. Explain how morphology relates to physiology across diverse organisms
	4. Describe how biological systems detect and respond to different internal/external environmental conditions through feedback.
	5. Compare and contrast strategies for achieving homeostasis.
	6. Explain how developmental and environmental processes influence the evolution of structures, functions, and life cycles across diverse organisms.
Outcomes assessment strategies:	• Open-ended essay questions and multiple-choice exams • Scientific papers that follow standard scientific format presenting independent investigations and may include peer-review(s) • Oral presentations of biological information, informed positions on contemporary issues, and/or laboratory results • Classroom assessments, such as, quizzes, one-minute summaries, pre-test/post-tests, etc. • Major independent projects, such as, experiential learning plus journals, botany collections with ecosystem reports, library research term papers, and field journals. • Scientific article critiques • Laboratory practical exams • Small projects and homework assignments.

COURSE CONTENT, ACTIVITIES AND DESIGN	
Activity & Design: The determination of teaching strategies used in the delivery of outcomes is generally left to the discretion of the instructor. On occasion, a department may decide that the inclusion of a particular strategy will be required (specify in "required activities" box below). For example, a department may determine that a course will be required to incorporate a service learning project into its curriculum delivery. However, for the most part, delivery mechanisms fall under academic freedom and so the individuality and creativity of each instructor. Here are some strategies that you might consider when designing your course: lecture, small group/forum discussion, flipped classroom, dyads, oral presentation, role play, simulation scenarios, group projects, service learning projects, hands-on lab, peer review/workshops, cooperative learning (jigsaw, fishbowl), inquiry based instruction, differentiated instruction (learning centers), graphic organizers, etc.	
Department required course activities (optional):	
Course Content – organized by outcomes (list each outcome followed by an outline of the related content):	**Outcome #1:** Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. • Introduction to genetics including Mendelian genetics • The chromosomal basis of inheritance • The molecular basis of inheritance • The transcription and translation of genes • Evolution by natural selection • Population genetics and microevolution • Speciation • Macroevolution and phylogenetic reconstruction • Early Earth and the origin of life • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi • Survey of biodiversity: invertebrate animals and the origin of animal diversity • Survey of biodiversity: vertebrate phylogeny • Genetics of viruses and bacteria (optional) • Gene expression in eukaryotes (optional) • DNA Technology (optional) **Outcome #2:** Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. • Introduction to genetics including Mendelian genetics • The chromosomal basis of inheritance • The molecular basis of inheritance • The transcription and translation of genes

	• Evolution by natural selection • Population genetics and microevolution • Speciation • Macroevolution and phylogenetic reconstruction • Early Earth and the origin of life • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi • Survey of biodiversity: invertebrate animals and the origin of animal diversity • Survey of biodiversity: vertebrate phylogeny • Genetics of viruses and bacteria (optional) • Gene expression in eukaryotes (optional) • DNA Technology (optional) **Outcome #3:** Explain how morphology relates to physiology across diverse organisms. • Evolution by natural selection • Population genetics and microevolution • Speciation • Macroevolution and phylogenetic reconstruction • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi • Survey of biodiversity: invertebrate animals and the origin of animal diversity **Outcome #4:** Describe how biological systems detect and respond to different internal/external environmental conditions through feedback. • Homeostasis in animals • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi • Survey of biodiversity: invertebrate animals and the origin of animal diversity • Survey of biodiversity: vertebrate phylogeny **Outcome #5:** Compare and contrast strategies for achieving homeostasis. • Homeostasis in animals • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi

	• Survey of biodiversity: invertebrate animals and the origin of animal diversity • Survey of biodiversity: vertebrate phylogeny **Outcome #6:** Explain how developmental and environmental processes influence the evolution of structures, functions, and life cycles across diverse organisms. • Evolution by natural selection • Population genetics and microevolution • Speciation • Macroevolution and phylogenetic reconstruction • Survey of biodiversity: prokaryotes • Survey of biodiversity: origins of eukaryotic diversity • Survey of biodiversity: plants colonize land • Survey of biodiversity: evolutionary significance of fungi • Survey of biodiversity: invertebrate animals and the origin of animal diversity • Survey of biodiversity: vertebrate phylogeny
Suggested Texts & Materials (specify if any texts or materials are required):	• Life: The Science of Biology Vol. 2 (Any Edition Past 8th) David E. Sadava, David M. Hillis, H. Craig Heller and May Berenbaum • Other: https://openstax.org/details/books/biology-2e
Department Notes: (optional)	Columbia Gorge Community College Science Department stands by the following statement regarding science instruction: Science is a fundamentally nondogmatic and self-correcting investigatory process. Theories (such as biological evolution and geologic time scale) are developed through scientific investigation are not decided in advance. As such, scientific theories can be and often are modified and revised through observation and experimentation. “Creation science", “Intelligent design” or similar beliefs are not considered legitimate science, but a form of religious advocacy. This position is established by legal precedence (Webster v. New Lenox School District #122, 917 F. 2d 1004). The Science Department at Columbia Gorge Community College, therefore stands with organizations such as the National Association of Biology Teachers in opposing the inclusion of pseudo-sciences in our science curricula except to reference and/or clarify its invalidity.

SECTION #4 TRANSFERABILITY
Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state requires us to certify that at least one Oregon university will accept our new LDC course in transfer. To ensure the quality of our transfer programs and to provide students with the best information on how individual courses will

transfer, we require faculty to ascertain the transferability of a proposed course by communicating with colleagues at a minimum of three Oregon universities, asking the following questions. 1. Is there an equivalent lower division course at the university? 2. Will a department accept the course for its major or minor requirements? 3. Will the course be accepted as part of the University's distribution requirements? While you may contact any Oregon university, we recommend, based on CGCC student transfer history, that you conduct transferability screening with OSU, PSU and EOU as these are the more common destinations of CGCC transfer students. If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course.

Which Oregon universities will the course transfer to? List all	All public OR universities
How does it transfer? Check all that apply	☒ Required or support for major ☒ General education distribution requirement ☐ General elective ☐ Other (provide details)
Provide evidence of transferability from three or more universities. Recommended universities based on CGCC transfer history: OSU, PSU and EOU	☐ Completed Transferability/Articulation of Individual CGCC Courses form ☒ Other – describe: CCN course so transferable to all public Oregon universities
Identify comparables at Oregon community colleges; list college, course prefix, number and title.	BI 222Z Principles of Biology: Organisms - CCN
Are special designations being sought at this time?	☒ General Education – Discipline specific Gen Ed form required. ☐ Cultural Literacy – Cultural Literacy designation request form required. (Cultural Literacy designation requires that the course has a Gen Ed designation.)

SECTION #5 ADDITIONAL INFORMATION FOR NEW LDC COURSES		
Is this course in a degree or certificate as required, an elective or a prerequisite? Please provide details.		
Name of certificate(s):		# credits:
Name of degree(s):	All degrees	# credits: 90-108
Briefly explain how this course fits into the above program(s), i.e. requirement or elective:	Elective – Natural Science w/ Lab elective: • AAOT • Associate of Science (AS) • AAOT: Elementary Education • Associate of Science Transfer: Computer Science • Associate of Science Transfer: Business • Associate of Arts Transfer: English • All AAS degrees	

Impact on other Programs and Departments	
Are there similar courses existing in other programs or disciplines at CGCC? If yes, explain and/or describe the nature of acknowledgements and/or agreements that have been reached.	No BI 222Z will be taught the same as the previous course BI 212. The course is being updated so that it will transfer to Oregon universities and colleges.
Have you consulted with the Department Chair(s) of other program(s) regarding potential impact such as content overlap, duplication, prerequisites, enrollment impact etc. Explain and/or describe the nature of acknowledgements or agreements reached.	Yes
Has the Library director been notified regarding the addition of this course and the need for any potential resources?	☒ Yes – date: 3.9.26 ☐ No
Implementation term:	☒ Start of next academic year (summer term) ☐ Specify term (if BEFORE start of next academic year):
Allow 1-2 months to complete the new course approval process before the course can be scheduled. The Curriculum Office will notify the submitter, department chair, and department director when the course has completed the approval process and is available to be scheduled. Curriculum changes generally go into effect at the beginning of the next academic year (summer term). Mid-year revisions/additions are discouraged but accommodated when possible if there is a specific, identifiable need.	

SECTION #6 DEPARTMENT REVIEW		
"I vouch that this submission has been reviewed by the affiliated department chair and department dean/director and that they have given initial authorization for this submission. I am requesting that it be placed on the next Curriculum Committee agenda with available time slots. I understand that I am required to complete and submit, prior to the day my submission is reviewed by the Curriculum Committee, a Course Signature Form signed by the department chair and dean/director."		
Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	4/3/26
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarrett Gilbert		

CC date 4.9.26
CC decision _____
CC vote _____

Columbia Gorge Community College

General Education/Discipline Studies List Request Form

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL & COURSE INFORMATION:			
Department	Science	Submitter Name: Phone: Email:	Emilie Miller 503-329-8118 Emiller@cgcc.edu
Course Prefix and Number:	BI 222Z	Course Title:	Principles of Biology: Organisms
Course Credits:	5	Gen Ed Category:	☐ Arts and Letters ☐ Social Science ☒ Science, Comp. Sci., and Math
Course Description:	Explores fundamental biological concepts and theories about the structure and function of diverse organisms (including plants and animals), evolution and development, transformation of energy and matter, and body systems at a multicellular organismal level. Intended for science majors. Prerequisites: BI 221Z. Audit available.		
Course Outcomes:	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Explain how morphology relates to physiology across diverse organisms. 4. Describe how biological systems detect and respond to different internal/external environmental conditions through feedback. 5. Compare and contrast strategies for achieving homeostasis. 6. Explain how developmental and environmental processes influence the evolution of structures, functions, and life cycles across diverse organisms.		

Lower Division Collegiate (LDC) courses that apply for General Education/Discipline Studies status must:

1. **Be available to all CGCC students who meet the prerequisites for the course.**
2. **Ensure that the appropriate AAOT Discipline Studies outcomes and criteria are reflected in the course's outcomes.** (If you need to revise your course outcomes, you must complete a Course Revision form.)
3. **Verify course transfer status using the Course Transfer/Articulation Status form** (available on the curriculum website)**.** In order to obtain general education status, at least three Oregon universities must confirm the course will transfer.
4. **Have the Standard Prerequisites unless the Department Chair has completed the Prerequisite Opt-Out form and that request is approved.**
5. **Be an LDC course that is eligible for the AAOT Discipline Studies List.**

In addition, course content must address the following:

1. **CGCC's General Education Philosophy Statement:** *Through a broad, well-balanced curriculum, the General Education program strives to instill a lifelong love of learning and to foster civic competence within our students.*
2. **CGCC Institutional Learning Outcomes (ILO):**
   Through their respective disciplines, CGCC students who earn a degree can:

1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (*Communication*)
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*)
3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*)
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (*Cultural Awareness*)
5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*)

Course outcomes and content are required, at a minimum, to demonstrate that ILOs 1 (*Communication*) and 2 (*Critical Thinking and Problem Solving*) are addressed as having a "major designation," and at least one additional ILO is addressed as having a "minor designation."

Major Designation:

1. The outcome is addressed recurrently in the curriculum, regularly enough to establish a thorough understanding.
2. Students can demonstrate and are assessed on a thorough understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

Minor Designation:

1. The outcome is addressed adequately in the curriculum, establishing fundamental understanding.
2. Students can demonstrate and are assessed on a fundamental understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

To establish an intentional learning environment, Institutional Learning Outcomes (ILOs) require a clear definition of instructional strategies, evidence of recurrent instruction, and employment of several assessment modes.

<table>
<tr><th colspan="2">SECTION #2 ADDRESS CGCC INSTITUTIONAL LEARNING OUTCOMES:</th></tr>
<tr><td colspan="2">For each ILO addressed, provide the following: 1) list the course outcome(s) that clearly reflects the ILO; 2) describe relevant course content, outlining how students will gain the skills and knowledge needed to achieve a level of mastery of the ILO; and 3) describe at least one assessment strategy that can be assessed by applying the appropriate ILO rubric.</td></tr>
<tr><th colspan="2">Gen Ed designated courses are required to address ILOs 1 and 2 as having a "major designation."</th></tr>
<tr><td>1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (Communication)

☒ major designation
REQUIRED</td><td>Course Outcomes:
1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.

Course Content: Communication is an important tool in health and other related sciences. Through conducting topical research relevant to the above outcomes while engaging with their peers, students learn to better listen to one another and better communicate verbally. Written assignments (labs, homework, and even exams) allow students to demonstrate written communication. The above topics are addressed serially through the course. Each assignment, oral or written, receives peer and/or instructor feedback based upon grading rubrics including direction on how to improve future communication of that type. In this way, students are taught how to write</td></tr>
</table>

	increasingly more effective communication through the varying oral or written assignments (e.g. lab reports). **Outcome Assessment Strategies:** Lab assignments, homework, exams.
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*) ☒ major designation **REQUIRED**	Course Outcomes: 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. **Course Content:** Students will learn how to solve problems using research, relevant scientific methods and reflection on the process. By learning about these topics students will gain knowledge to help them be more creative when solving problems in the workplace and their lives. **Outcome Assessment Strategies**: Homework and laboratory assignments.
Provide a response for each of the following three ILOs that your course addresses. At a minimum, Gen Ed designated courses are required to address one of these three as at least a "minor designation". While the Gen Ed designation only requires one additional ILO, please provide a response for all applicable ILOs, "minor" or "major."	
3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*) Check one: ☒ major ☐ minor ☐ not addressed significantly	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific biomolecules. **Course Content:** Laboratory assignments allow students to apply the scientific method to solve problems. Students analyze their data to determine cause and effect relationships in the lab setting. They understand the impact the nature of how a lab was conducted and relate it to the results they had. **Outcome Assessment Strategies:** Laboratory assignments and homework.
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (Intercultural Knowledge & Competence) Check one: ☐ major ☐ minor ☒ not addressed significantly	Course Outcomes: Course Content: Outcome Assessment Strategies:

5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*) Check one: ☐ major ☒ minor ☐ not addressed significantly	**Course Outcomes:** 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. **Course Content**: Students will identify, and evaluate current and evolving research and theories as they apply to themselves, their family and our society. Students address impact on the environment the natural world. Understanding the implication of human activity on the environment is important as a citizen making informed choices on how their actions impact the world. **Outcome Assessment Strategies**: Homework and exams.

SECTION #3 ADDRESS THE AAOT DISCIPLINE STUDIES OUTCOMES AND CRITERIA:

Complete only the questions regarding outcomes and criteria for the category to which your course belongs - Art and Letters; Social Sciences; Science and Computer Science; or Mathematics.

Science or Computer Science

Outcomes:

As a result of taking General Education Science or Computer Science courses, a student should be able to:

- Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions;
- Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner; and
- Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

Criteria:

A General Education course in either Science or Computer Science should:

1. Analyze the development, scope, and limitations of fundamental scientific concepts, models, theories, and methods.
2. Engage students in problem-solving and investigation, through the application of scientific and mathematical methods and concepts, and by using evidence to create and test models and draw conclusions. The goal should be to develop analytical thinking that includes evaluation, synthesis, and creative insight.
3. Examine relationships with other subject areas, including the ethical application of science in human society and the relevance of science to everyday life.

In addition:

4a. A General Education course in Science should engage students in collaborative, hands-on and/or real-life activities that develop scientific reasoning and the capacity to apply mathematics and that allow students to experience the exhilaration of discovery.

4b. A General Education course in Computer Science should engage students in the design of algorithms and computer programs that solve problems.

List the course outcome(s) from the course's CCOG that clearly reflect the above outcomes and criteria.*	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Explain how morphology relates to physiology across diverse organisms. 4. Describe how biological systems detect and respond to different internal/external environmental conditions through feedback.

	5. Compare and contrast strategies for achieving homeostasis. 6. Explain how developmental and environmental processes influence the evolution of structures, functions, and life cycles across diverse organisms.
***Note:** It must be clearly evident that the above outcomes are addressed within the course's outcomes. Between your answers to the three outcomes questions below, you also need to address all of the first three criteria as well as the appropriate fourth criterion.	
How does the course enable a student to "gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions"?	Homework questions and laboratory assignments allow students to gather information and explore scientific ideas. Further question generation occurs during interactive lab experiments with peers.
How does the course enable a student to "apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner"?	Homework questions and laboratory assignments encourage students to apply scientific and technical modes of inquiry. Further critical evaluation occurs during interactive lab assignments and tasks performed with peers.
How does the course enable a student to "assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment"?	Student research in response to homework questions and laboratory assignments allows them to analyze the strengths and weaknesses of scientific studies and effects on the greater world.

Section #4 Department Review		
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Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	4/3/2026
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarrett Gilbert		

NEXT STEPS:

1. Save this document as the course prefix and course number.gened (e.g. HST 104.gened). Send completed form electronically to curriculum@cgcc.edu or slewis@cgcc.edu.

CC date 4.9.26
CC decision _____
CC vote _____

Columbia Gorge Community College

New Course Lower Division Collegiate (LDC)

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL INFORMATION

Department:	Science	Submitter name: phone: email:	Emilie Miller 503-328-8118
Prefix and Course Number:	BI 223Z	Credits:	5
Course Title: (75 characters max, including spaces)	Principles of Biology: Ecology and Evolution		
May this course be repeated for credit?	☐ Yes ☒ No	For how many times total?	Contact hours: Lecture: 40 Lec/lab: 0 Lab: 30
Reason for the new course	Updating Course Numbers for Improved Transferability to Oregon Colleges and Universities		

GRADE OPTIONS: Check as many or as few options as you'd like. **Choose the default grade option** which will automatically be assigned for students who do not make a grade option choice when registering for classes.

	Check all that apply	Default (Choose one)
A-F (letter grade)	☒	☒
Pass/No pass	☒	☐
Audit in consultation with faculty	☒	☐

Is this course equivalent to another? If yes, they must have the same description and outcomes.	☐ Yes ☒ No	Course Number and Title

SECTION #2 REQUISITES: PLACEMENT INTO, PRE, CO AND CONCURRENT

Note: if this course is requesting approval for the Gen Ed list, it will have, as a default, the following standard requisites: Prerequisite: placement into MTH 65 or MTH 98. Prerequisite/concurrent: WR 121. Higher levels of any of these prerequisites, or additional prerequisites can be requested. However, if the department wants to set the WR and/or MTH prerequisites at a lower level, you will need to use the Prerequisite Opt-out form available on the Curriculum website.

☐ Standard requisites – Prerequisite: placement into MTH 65 or MTH 98.
Prerequisite/concurrent: WR 121Z.

☐ Placement into:		☐ Placement into:		
course prefix & number:	BI 222Z	☒ Prerequisite	☐ Corequisite	☐ pre/co
course prefix & number:		☐ Prerequisite	☐ Corequisite	☐ pre/co
course prefix & number:		☐ Prerequisite	☐ Corequisite	☐ pre/co

SECTION #3 COURSE DESCRIPTION, OUTCOMES, AND CONTENT	
COURSE DESCRIPTION: To be used in the catalog and schedule of classes. Begin each sentence of the course description with an active verb. Avoid using the phrases: "This course will …" and/or "Students will …" Include course requisites in the description. Guidelines for writing concise descriptions can be found at Writing Course Descriptions.	
Explores the unity and diversity of life through evolutionary mechanisms and relationships, and adaptation to the environment. Examines population, community, and ecosystem ecology. Intended for science majors. Prerequisites: BI 222Z. Audit available.	
LEARNING OUTCOMES: Describe what the student will be able to do "out there" (in their life roles as worker, family member, community citizen, global citizen or lifelong learners). Outcomes must be measurable through the application of direct and/or indirect assessment strategies. Three to six outcomes are recommended. Start each outcome with an active verb, completing the sentence starter provided. (See Writing Learning Outcomes on the curriculum website.)	
Outcomes: (Use observable and measurable verbs)	Upon successful completion of this course, students will be able to:
	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.
	2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.
	3. Provide evidence for phylogenetic relationships which illustrate the unity and diversity of life.
	4. Describe how adaptation, development, mutation, and the environment affect organismal evolution
	5. Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors.
	6. Explain how organisms and their environments affect each other across different temporal and spatial scales.
	7. Interpret models explaining the flow of energy and cycling of matter in ecosystems.
Outcomes assessment strategies:	• Open-ended essay questions and multiple-choice exams • Scientific papers that follow standard scientific format presenting independent investigations and may include peer-review(s) • Oral presentations of biological information, informed positions on contemporary issues, and/or laboratory results • Classroom assessments, such as, quizzes, one-minute summaries, pre-test/post-tests, etc. • Major independent projects, such as, experiential learning plus journals, botany collections with ecosystem reports, library research term papers, and field journals. • Scientific article critiques • Laboratory practical exams • Small projects and homework assignments.

COURSE CONTENT, ACTIVITIES AND DESIGN	
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Department required course activities (optional):	
Course Content – organized by outcomes (list each outcome followed by an outline of the related content):	**Outcome #1:** Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. • Plant anatomy and morphology • Transport in plants • Plant nutrition • Plant reproduction and development • Plant growth, development, and responses to environmental stimuli • Animal tissues and body plans • Animal nutrition • Animal circulation and gas exchange • Animal immune systems (optional) • Chemical signals in animals • Animal reproduction (optional) • Animal development (optional) • Animal nervous systems • Animal sensory and motor systems • The distribution and adaptations of organisms • Population ecology • Community ecology • Ecosystem ecology **Outcome #2:** Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. • Population ecology • Community ecology • Ecosystem ecology **Outcome #3:** Provide evidence for phylogenetic relationships which illustrate the unity and diversity of life. • Macroevolution and phylogenetic reconstruction **Outcome #4:** Describe how adaptation, development, mutation, and the environment affect organismal evolution.

	• Population ecology • Community ecology • Ecosystem ecology **Outcome #5:** Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors. • Population ecology • Community ecology • Ecosystem ecology **Outcome #6:** Explain how organisms and their environments affect each other across different temporal and spatial scales. • Population ecology • Community ecology • Ecosystem ecology **Outcome #7:** Interpret models explaining the flow of energy and cycling of matter in ecosystems. • Population ecology • Community ecology • Ecosystem ecology
Suggested Texts & Materials (specify if any texts or materials are required):	• Life: The Science of Biology Vol. 3 (Any Edition Past 8th) David E. Sadava, David M. Hillis, H. Craig Heller and May Berenbaum • Other: https://openstax.org/details/books/biology-2e
Department Notes: (optional)	Columbia Gorge Community College Science Department stands by the following statement regarding science instruction: Science is a fundamentally nondogmatic and self-correcting investigatory process. Theories (such as biological evolution and geologic time scale) are developed through scientific investigation are not decided in advance. As such, scientific theories can be and often are modified and revised through observation and experimentation. “Creation science", “Intelligent design” or similar beliefs are not considered legitimate science, but a form of religious advocacy. This position is established by legal precedence (Webster v. New Lenox School District #122, 917 F. 2d 1004). The Science Department at Columbia Gorge Community College, therefore stands with organizations such as the National Association of Biology Teachers in opposing the inclusion of pseudo-sciences in our science curricula except to reference and/or clarify its invalidity.

SECTION #4 TRANSFERABILITY

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state requires us to certify that at least one Oregon university will accept our new LDC course in transfer. To ensure the quality of our transfer programs and to provide students with the best information on how individual courses will transfer, we require faculty to ascertain the transferability of a proposed course by communicating with colleagues at a minimum of three Oregon universities, asking the following questions.

1. Is there an equivalent lower division course at the university?

2. Will a department accept the course for its major or minor requirements? 3. Will the course be accepted as part of the University's distribution requirements? While you may contact any Oregon university, we recommend, based on CGCC student transfer history, that you conduct transferability screening with OSU, PSU and EOU as these are the more common destinations of CGCC transfer students. If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course.

Which Oregon universities will the course transfer to? List all	All public OR universities
How does it transfer? Check all that apply	☒ Required or support for major ☒ General education distribution requirement ☐ General elective ☐ Other (provide details)
Provide evidence of transferability from three or more universities. Recommended universities based on CGCC transfer history: OSU, PSU and EOU	☐ Completed Transferability/Articulation of Individual CGCC Courses form ☒ Other - describe: CCN course so transferable to all public Oregon universities
Identify comparables at Oregon community colleges; list college, course prefix, number and title.	BI 223Z Principles of Biology: Ecology and Evolution – CCN
Are special designations being sought at this time?	☒ General Education – Discipline specific Gen Ed form required. ☐ Cultural Literacy – Cultural Literacy designation request form required. (Cultural Literacy designation requires that the course has a Gen Ed designation.)

SECTION #5 ADDITIONAL INFORMATION FOR NEW LDC COURSES		
Is this course in a degree or certificate as required, an elective or a prerequisite? Please provide details.		
Name of certificate(s):		# credits:
Name of degree(s):	All degrees	# credits: 90-108
Briefly explain how this course fits into the above program(s), i.e. requirement or elective:	Elective – Natural Science w/ Lab elective: • AAOT • Associate of Science (AS) • AAOT: Elementary Education • Associate of Science Transfer: Computer Science • Associate of Science Transfer: Business • Associate of Arts Transfer: English • All AAS degrees	
Impact on other Programs and Departments		
Are there similar courses existing in other programs or disciplines at CGCC? If yes, explain and/or describe the nature of acknowledgements and/or agreements that have been reached.	No BI 223Z will be taught the same as the previous course BI 213. The course is being updated so that it will transfer to Oregon universities and colleges.	

Have you consulted with the Department Chair(s) of other program(s) regarding potential impact such as content overlap, duplication, prerequisites, enrollment impact etc. Explain and/or describe the nature of acknowledgements or agreements reached.	Yes
Has the Library director been notified regarding the addition of this course and the need for any potential resources?	☒ Yes – date: 3.9.26 ☐ No
Implementation term:	☒ Start of next academic year (summer term) ☐ Specify term (if BEFORE start of next academic year):
Allow 1-2 months to complete the new course approval process before the course can be scheduled. The Curriculum Office will notify the submitter, department chair, and department director when the course has completed the approval process and is available to be scheduled. Curriculum changes generally go into effect at the beginning of the next academic year (summer term). Mid-year revisions/additions are discouraged but accommodated when possible if there is a specific, identifiable need.	

SECTION #6 DEPARTMENT REVIEW

"I vouch that this submission has been reviewed by the affiliated department chair and department dean/director and that they have given initial authorization for this submission. I am requesting that it be placed on the next Curriculum Committee agenda with available time slots. I understand that I am required to complete and submit, prior to the day my submission is reviewed by the Curriculum Committee, a Course Signature Form signed by the department chair and dean/director."

Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	4.3.26
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarett Gilbert		

NEXT STEPS:

1. Save this document as the course prefix and number (e.g. MTH 65 or HST 104). Send completed form electronically to curriculum@cgcc.edu or slewis@cgcc.edu.
2. Refer to the curriculum office website for the Curriculum Committee meeting schedule and submission deadlines. You are encouraged to send submissions prior to the deadline so that the curriculum office may review and provide feedback.
3. Submissions will be placed on the next agenda with available time slots, and you will be notified of your submission's estimated time for review. The Curriculum Office will send a signature page to your department chair and department dean/director that may be completed electronically. Signature pages must be received by the Curriculum Office the day before the Curriculum Committee meeting for which the submission is scheduled. Submissions without signed signature pages will be postponed.
4. It is not mandatory that you attend the Curriculum Committee meeting in which your submission is scheduled for review; however, it is strongly encouraged that you attend so that you may represent your submission and respond to any committee questions. Unanswered questions may result in a submission being rescheduled for further clarification.

CC date 4.9.26
CC decision _____
CC vote _____

Columbia Gorge Community College

General Education/Discipline Studies List Request Form

(Double click on check boxes to activate dialog box)

SECTION #1 GENERAL & COURSE INFORMATION:			
Department	Science	Submitter Name: Phone: Email:	Emilie Miller 503-329-8118 Emiller@cgcc.edu
Course Prefix and Number:	BI 223Z	Course Title:	Principles of Biology: Ecology and Evolution
Course Credits:	5	Gen Ed Category:	☐ Arts and Letters ☐ Social Science ☒ Science, Comp. Sci., and Math
Course Description:	Explores the unity and diversity of life through evolutionary mechanisms and relationships, and adaptation to the environment. Examines population, community, and ecosystem ecology. Intended for science majors.		
Course Outcomes:	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Provide evidence for phylogenetic relationships which illustrate the unity and diversity of life. 4. Describe how adaptation, development, mutation, and the environment affect organismal evolution. 5. Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors. 6. Explain how organisms and their environments affect each other across different temporal and spatial scales. 7. Interpret models explaining the flow of energy and cycling of matter in ecosystems.		

Lower Division Collegiate (LDC) courses that apply for General Education/Discipline Studies status must:

1. **Be available to all CGCC students who meet the prerequisites for the course.**
2. **Ensure that the appropriate AAOT Discipline Studies outcomes and criteria are reflected in the course's outcomes.** (If you need to revise your course outcomes, you must complete a Course Revision form.)
3. **Verify course transfer status using the Course Transfer/Articulation Status form** (available on the curriculum website)**.** In order to obtain general education status, at least three Oregon universities must confirm the course will transfer.
4. **Have the Standard Prerequisites unless the Department Chair has completed the Prerequisite Opt-Out form and that request is approved.**
5. **Be an LDC course that is eligible for the AAOT Discipline Studies List.**

In addition, course content must address the following:

1. **CGCC's General Education Philosophy Statement:** *Through a broad, well-balanced curriculum, the General Education program strives to instill a lifelong love of learning and to foster civic competence within our students.*
2. **CGCC Institutional Learning Outcomes (ILO):**

Through their respective disciplines, CGCC students who earn a degree can:

1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (*Communication*)
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*)
3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*)
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (*Intercultural Knowledge and Competence*)
5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*)

Course outcomes and content are required, at a minimum, to demonstrate that ILOs 1 (*Communication*) and 2 (*Critical Thinking and Problem Solving*) are addressed as having a "major designation," and at least one additional ILO is addressed as having a "minor designation."

Major Designation:

1. The outcome is addressed recurrently in the curriculum, regularly enough to establish a thorough understanding.
2. Students can demonstrate and are assessed on a thorough understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

Minor Designation:

1. The outcome is addressed adequately in the curriculum, establishing fundamental understanding.
2. Students can demonstrate and are assessed on a fundamental understanding of the outcome.
    - The course includes at least one assignment that can be assessed by applying the appropriate ILO rubric.

To establish an intentional learning environment, Institutional Learning Outcomes (ILOs) require a clear definition of instructional strategies, evidence of recurrent instruction, and employment of several assessment modes.

SECTION #2 ADDRESS CGCC INSTITUTIONAL LEARNING OUTCOMES:	
For each ILO addressed, provide the following: 1) list the course outcome(s) that clearly reflects the ILO; 2) describe relevant course content, outlining how students will gain the skills and knowledge needed to achieve a level of mastery of the ILO; and 3) describe at least one assessment strategy that can be assessed by applying the appropriate ILO rubric.	
Gen Ed designated courses are required to address ILOs 1 and 2 as having a "major designation."	
1. Communicate effectively using appropriate reading, writing, listening, and speaking skills. (*Communication*) ☒ major designation **REQUIRED**	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. **Course Content:** Communication is an important tool in health and other related sciences. Through conducting topical research relevant to the above outcomes while engaging with their peers, students learn to better listen to one another and better communicate verbally. Written assignments (labs, homework, and even exams) allow students to demonstrate written communication. The above topics are addressed serially through the course. Each assignment, oral or written, receives peer and/or instructor feedback based upon grading rubrics including direction on how to improve future

	communication of that type. In this way, students are taught how to write increasingly more effective communication through the varying oral or written assignments (e.g. lab reports). **Outcome Assessment Strategies:** Lab assignments, homework, exams.
2. Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical Thinking and Problem-Solving*) ☒ major designation **REQUIRED**	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. **Course Content:** Students will learn how to solve problems using research, relevant scientific methods and reflection on the process. By learning about these topics students will gain knowledge to help them be more creative when solving problems in the workplace and their lives. **Outcome Assessment Strategies**: Homework and laboratory assignments.
Provide a response for each of the following three ILOs that your course addresses. At a minimum, Gen Ed designated courses are required to address one of these three as at least a "minor designation". While the Gen Ed designation only requires one additional ILO, please provide a response for all applicable ILOs, "minor" or "major."	
3. Extract, interpret, evaluate, communicate, and apply quantitative information and methods to solve problems, evaluate claims, and support decisions in their academic, professional and private lives. (*Quantitative Literacy*) Check one: ☒ major ☐ minor ☐ not addressed significantly	**Course Outcomes:** 1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific biomolecules. 5. Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors. **Course Content:** Laboratory assignments allow students to apply the scientific method to solve problems. Students analyze their data to determine cause and effect relationships in the lab setting. They understand the impact the nature of how a lab was conducted and relate it to the results they had. **Outcome Assessment Strategies:** Laboratory assignments and homework.
4. Use an understanding of cultural differences to constructively address issues that arise in the workplace and community. (*Cultural Awareness*) Check one: ☐ major ☐ minor ☒ not addressed significantly	Course Outcomes: Course Content: Outcome Assessment Strategies:

5. Recognize the consequences of human activity upon our social and natural world. (*Community and Environmental Responsibility*) Check one: ☐ major ☒ minor ☐ not addressed significantly	**Course Outcomes:** 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. **Course Content**: Students will identify, and evaluate current and evolving research and theories as they apply to themselves, their family and our society. Students address impact on the environment the natural world. Understanding the implication of human activity on the environment is important as a citizen making informed choices on how their actions impact the world. **Outcome Assessment Strategies**: Homework and exams.

SECTION #3 ADDRESS THE AAOT DISCIPLINE STUDIES OUTCOMES AND CRITERIA:	
Complete only the questions regarding outcomes and criteria for the category to which your course belongs - Art and Letters; Social Sciences; Science and Computer Science; or Mathematics.	
Science or Computer Science	
Outcomes:	
As a result of taking General Education Science or Computer Science courses, a student should be able to: • Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions; • Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner; and • Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.	
Criteria:	
A General Education course in either Science or Computer Science should: 1. Analyze the development, scope, and limitations of fundamental scientific concepts, models, theories, and methods. 2. Engage students in problem-solving and investigation, through the application of scientific and mathematical methods and concepts, and by using evidence to create and test models and draw conclusions. The goal should be to develop analytical thinking that includes evaluation, synthesis, and creative insight. 3. Examine relationships with other subject areas, including the ethical application of science in human society and the relevance of science to everyday life. In addition: 4a. A General Education course in Science should engage students in collaborative, hands-on and/or real-life activities that develop scientific reasoning and the capacity to apply mathematics and that allow students to experience the exhilaration of discovery. 4b. A General Education course in Computer Science should engage students in the design of algorithms and computer programs that solve problems.	
List the course outcome(s) from the course's CCOG that clearly reflect the above outcomes and criteria.*	1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding. 2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society. 3. Provide evidence for phylogenetic relationships which illustrate the unity and diversity of life.

	4. Describe how adaptation, development, mutation, and the environment affect organismal evolution. 5. Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors. 6. Explain how organisms and their environments affect each other across different temporal and spatial scales. 7. Interpret models explaining the flow of energy and cycling of matter in ecosystems.
***Note:** It must be clearly evident that the above outcomes are addressed within the course's outcomes. Between your answers to the three outcomes questions below, you also need to address all of the first three criteria as well as the appropriate fourth criterion.	
How does the course enable a student to "gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions"?	Homework questions and laboratory assignments allow students to gather information and explore scientific ideas. Further question generation occurs during interactive lab experiments with peers.
How does the course enable a student to "apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner"?	Homework questions and laboratory assignments encourage students to apply scientific and technical modes of inquiry. Further critical evaluation occurs during interactive lab assignments and tasks performed with peers.
How does the course enable a student to "assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment"?	Student research in response to homework questions and laboratory assignments allows them to analyze the strengths and weaknesses of scientific studies and effects on the greater world.

Section #4 Department Review

"I vouch that this submission has been reviewed by the affiliated department chair and department dean/director and that they have given initial authorization for this submission. I am requesting that it be placed on the next Curriculum Committee agenda with available time slots. I understand that I am required to complete and submit, prior to the day my submission is reviewed by the Curriculum Committee, a Course Signature Form signed by the department chair and dean/director."

Submitter	Email	Date
Emilie Miller	emiller@cgcc.edu	4/3/2026
Department Chair (enter name of department chair): Robert Kovacich		
Department Dean/Director (enter name of department dean/director): Jarrett Gilbert		

BI/BIO/BIOL 221Z Principles of Biology: Cells

The following provides a summary of the 2024 Recommendation Report for the CCN Biology Subcommittee. Transfer Council recommends that due to changes in course information under OAR 715-025-0065 through 0115, colleges and universities should ensure students' academic progress is not disrupted. Courses completed before CCN changes should count toward graduation, even if requirements shift. Holding students harmless means honoring their efforts, supporting them through transitions, and keeping learning—not compliance—the central focus. CCN course information should be adopted as written. For more detailed information on what can be added to the course description and course learning outcomes, see the CCN Revised Framework and for more general information, see CCN Reports & Memos on the Educator Resources—Common Course Numbering webpage.

Approved CCN Course Information

Date Approved:
November 21, 2024

Catalog Dates:
Required to begin appearing in the 2025-26 catalog.

Review Timeline:
First Annual Review: Spring 2027

First Triennial Review: Fall 2029

Course Number and Prefix:
BI, BIO, or BIOL 221Z

Course Title:
Principles of Biology: Cells

Course Credits:
5 (The course must include both lecture and lab components. Both of these components are embedded under the same course number and appearing as a single grade item on transcripts.)

Course Description:
Explores fundamental biological concepts and theories about the cellular and molecular basis of life including cell structure and function, metabolism, genetic basis of inheritance and how information flows from DNA to proteins, with a focus on the iterative process of science. Intended for science majors.

Course Learning Outcome Introductory Statement:

This work is based on the national 2011 American Association of Advancement of Science (AAAS) report "Vision and Change in Undergraduate Biology Education" that recommended five overarching Core Concepts and six Core Competencies for biology majors. For details about implementation refer to:

- For Core Concepts see BioCore Guide (see Supplement 2 from Brownell et al., 2017)
- For Core Competencies see BioSkills Guide (see Supplement from Clemmons et al., 2020)

Course Learning Outcomes:

1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.
2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.
3. Describe the structure and related functions of major classes of biomolecules.
4. Differentiate cell components and their functions, emphasizing them as a system of interacting parts.
5. Compare and contrast anabolic (photosynthesis) and catabolic (respiration and fermentation) pathways emphasizing the transformation of energy and matter.
6. Articulate how cells store, use, and transmit genetic information.
7. Explain how mutation and genetic recombination contribute to phenotypic variation and evolution.

Review Cycle:

The subcommittee proposes both an annual and triennial review.

The annual review cycle for these courses should

1. Assess the transfer effectiveness of the courses across institutions
2. Collect feedback regarding challenges, concerns, or potential areas for improvement from the 24 participating two- and four-year schools in the state.

This annual review process aims to maintain consistency in transferability and address emergent needs promptly. The first annual review is proposed for Spring 2027, with the assumption that the Common Course Numbering (CCN) approved outlines will be implemented by Fall 2025.

In addition to the annual review, the subcommittee recommends a comprehensive triennial alignment review, beginning in Fall 2029. This triennial review will provide an opportunity to assess the alignment of course content rigorously and will be the only point at which the subcommittee may consider voting to modify the aligned course content. This review will utilize data collected since the previous three-year review to make an informed decision. At the conclusion of each triennial review cycle, the subcommittee will recommend either affirming the current alignment or making revisions to specific aspects, based on the accumulated evidence and feedback.

The subcommittee also emphasizes the importance of involving original subcommittee members in these discussions to the extent possible. The presence of members with historical knowledge and an understanding of

the initial decisions will ensure continuity and contextual insight, aiding in informed decision-making for the ongoing development and alignment of these courses.

BI/BIO/BIOL 222Z Principles of Biology: Organisms

The following provides a summary of the 2024 Recommendation Report for the CCN Biology Subcommittee. Transfer Council recommends that due to changes in course information under OAR 715-025-0065 through 0115, colleges and universities should ensure students' academic progress is not disrupted. Courses completed before CCN changes should count toward graduation, even if requirements shift. Holding students harmless means honoring their efforts, supporting them through transitions, and keeping learning—not compliance—the central focus. CCN course information should be adopted as written. For more detailed information on what can be added to the course description and course learning outcomes, see the CCN Revised Framework and for more general information, see CCN Reports & Memos on the Educator Resources—Common Course Numbering webpage.

Approved CCN Course Information

Date Approved:
November 21, 2024

Catalog Dates:
Required to begin appearing in the 2025-26 catalog.

Review Timeline:
First Annual Review: Spring 2027

First Triennial Review: Fall 2029

Course Number and Prefix:
BI, BIO, or BIOL 222Z

Course Title:
Principles of Biology: Organisms

Course Credits:
5 (The course must include both lecture and lab components. Both of these components are embedded under the same course number and appearing as a single grade item on transcripts.)

Course Description:
Explores fundamental biological concepts and theories about the structure and function of diverse organisms (including plants and animals), evolution and development, transformation of energy and matter, and body systems at a multicellular organismal level. Intended for science majors.

Course Learning Outcome Introductory Statement:

This work is based on the national 2011 American Association of Advancement of Science (AAAS) report "Vision and Change in Undergraduate Biology Education" that recommended five overarching Core Concepts and six Core Competencies for biology majors. For details about implementation refer to:

- For Core Concepts see BioCore Guide (see Supplement 2 from Brownell et al., 2017)
- For Core Competencies see BioSkills Guide (see Supplement from Clemmons et al., 2020)

Course Learning Outcomes:

1. Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.
2. Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.
3. Explain how morphology relates to physiology across diverse organisms.
4. Describe how biological systems detect and respond to different internal/external environmental conditions through feedback.
5. Compare and contrast strategies for achieving homeostasis.
6. Explain how developmental and environmental processes influence the evolution of structures, functions, and life cycles across diverse organisms.

Review Cycle:

The subcommittee proposes both an annual and triennial review.

The annual review cycle for these courses should

1. Assess the transfer effectiveness of the courses across institutions
2. Collect feedback regarding challenges, concerns, or potential areas for improvement from the 24 participating two- and four-year schools in the state.

This annual review process aims to maintain consistency in transferability and address emergent needs promptly. The first annual review is proposed for Spring 2027, with the assumption that the Common Course Numbering (CCN) approved outlines will be implemented by Fall 2025.

In addition to the annual review, the subcommittee recommends a comprehensive triennial alignment review, beginning in Fall 2029. This triennial review will provide an opportunity to assess the alignment of course content rigorously and will be the only point at which the subcommittee may consider voting to modify the aligned course content. This review will utilize data collected since the previous three-year review to make an informed decision. At the conclusion of each triennial review cycle, the subcommittee will recommend either affirming the current alignment or making revisions to specific aspects, based on the accumulated evidence and feedback.

The subcommittee also emphasizes the importance of involving original subcommittee members in these discussions to the extent possible. The presence of members with historical knowledge and an understanding of

the initial decisions will ensure continuity and contextual insight, aiding in informed decision-making for the ongoing development and alignment of these courses.

BI/BIO/BIOL 223Z Principles of Biology: Ecology and Evolution

The following provides a summary of the 2024 Recommendation Report for the CCN Biology Subcommittee. Transfer Council recommends that due to changes in course information under OAR 715-025-0065 through 0115, colleges and universities should ensure students' academic progress is not disrupted. Courses completed before CCN changes should count toward graduation, even if requirements shift. Holding students harmless means honoring their efforts, supporting them through transitions, and keeping learning—not compliance—the central focus. CCN course information should be adopted as written. For more detailed information on what can be added to the course description and course learning outcomes, see the CCN Revised Framework and for more general information, see CCN Reports & Memos on the Educator Resources—Common Course Numbering webpage.

Approved CCN Course Information

Date Approved:

November 21, 2024

Catalog Dates:

Required to begin appearing in the 2025-26 catalog.

Review Timeline:

- First Annual Review: Spring 2027
- First Triennial Review: Fall 2029

Course Number and Prefix:
BI, BIO, or BIOL 2223Z

Course Title:
Principles of Biology: Ecology and Evolution

Course Credits:

5 (The course must include both lecture and lab components. Both of these components are embedded under the same course number and appearing as a single grade item on transcripts.)

Course Description:

Explores the unity and diversity of life through evolutionary mechanisms and relationships, and adaptation to the environment. Examines population, community, and ecosystem ecology. Intended for science majors.

Course Learning Outcome Introductory Statement:

This work is based on the national 2011 American Association of Advancement of Science (AAAS) report "Vision and Change in Undergraduate Biology Education" that recommended 5 overarching Core Concepts and 6 Core Competencies for biology majors. For details about implementation refer to:

- For Core Concepts see BioCore Guide (see Supplement 2 from Brownell et al., 2017)
- For Core Competencies see BioSkills Guide (see Supplement from Clemmons et al., 2020)

Course Learning Outcomes:

Apply the iterative process of science to generate and answer biological questions by analyzing data and drawing conclusions that are based on empirical evidence and current scientific understanding.

Use evidence to develop informed opinions on contemporary biological issues and explain the implications of those issues on society.

Provide evidence for phylogenetic relationships which illustrate the unity and diversity of life.

Describe how adaptation, development, mutation, and the environment affect organismal evolution.

Apply mathematical models to describe how populations change through time in relation to biotic and abiotic factors.

Explain how organisms and their environments affect each other across different temporal and spatial scales.

Interpret models explaining the flow of energy and cycling of matter in ecosystems.

Review Cycle:

The subcommittee proposes both an annual and triennial review.

The annual review cycle for these courses should

Assess the transfer effectiveness of the courses across institutions

Collect feedback regarding challenges, concerns, or potential areas for improvement from the 24 participating two- and four-year schools in the state.
