

## 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

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**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.

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