Instructor: Gavan M. Albright, MS.
Biology 160 – Fundamentals of the Cell

Course Description:
An introductory cell biology course for students preparing for health professions. Major concepts of cell biology will be introduced, including the chemistry of life, the structure, reproduction and metabolism of cells, genetics and evolutionary biology. Laboratory included.

Prerequisites (completed with a “C” or better):
- English 95
- Math 90
- Reading 95

Contact Information:
E-mail: galbright@tacomacc.edu
Office Telephone: (253) 460-4372
When leaving telephone messages speak clearly and slowly. Give your full name, course and telephone number at the beginning of the message. Please leave only 1 message (telephone or e-mail) per 24-hr period.

Faculty & Course Website:
http://www.tacomacc.edu/home/galbright/

College Learning Outcomes
Tacoma Community College has identified six college-wide learning outcomes that form the foundation of our educational emphasis:

1) Communication (COM)
2) Critical thinking (CRT)
3) Responsibility & Ethics (RSP)
4) Information & Information Technology (IIT)
5) Living and Working Cooperatively (LWC)
6) Core of Knowledge (COK)
Course Objectives

Upon successful completion of this course, students should be able to:

1. Describe the process of science. (1,2,4) (COK, CRT, ITT)
2. Describe the characteristics of living things. (1,3) (COK, CRT, COM)
3. Explain the levels of biological organization from the atomic level to the ecosystem level. (1,3) (COK, CRT)
4. Using elements most commonly found in organisms, describe the structures of atoms, including subatomic particles. (3) (COK, CRT)
5. Explain how atoms form ionic and covalent bonds. (3) (COK, CRT)
6. Describe the properties of water that make it an ideal solvent for biological systems (3) (COK, CRT)
7. Identify acids and bases, use pH to characterize solutions, and explain the role of buffers in biological systems. (3) (COK, CRT)
8. Recognize the functional groups most commonly found in biological molecules. (3) (COK, CRT)
9. Explain how monomers combine to form biological polymers. (3) (COK, CRT)
10. Compare the chemical structures and functions of carbohydrates, lipids, proteins, and nucleic acids. (1, 3) (COK, CRT)
11. Explain what enzymes are and what they do. (3) (COK, CRT)
12. Compare & contrast prokaryotic and eukaryotic cell structures. (3) (COK, CRT)
13. Describe the form, chemical composition, and functions of cell structures and organelles. (3) (COK, CRT)
14. Explain common membrane transport processes. (3) (COK, CRT)
15. Describe the basic steps of cellular respiration and photosynthesis. (3) (COK, CRT)
16. Apply biological principles (scarcity, carbon emissions, geochemical cycling) to global energy use issues. (1,2,3) (COK, CRT, LWC, RES)
17. Explain the chromosomal basis of inheritance. (3) (COK, CRT)
18. Describe the cell cycle and the process of mitosis in cell division. (3) (COK, CRT)
19. Describe the process of meiosis and the genetic importance of meiosis in life cycles and sexual reproduction. (3) (COK, CRT)
20. Describe the structures of DNA and RNA. (3) (COK, CRT)
21. Explain the processes of replication, transcription & translation and their regulation. (1,3) (COK, CRT)
22. Describe the basic tenants of evolution by natural selection. (1,2,3) (COK, CRT)
23. Explain the basic evidence for evolution including the evolutionary connection between prokaryotic and eukaryotic cells. (1,2,3) (COK, CRT)
24. Research, interpret, critique, and present biological information. (1,2,4,5) (COK, CRT, ITT, COM)
25. Demonstrate competency with using a light microscope to observe prokaryotic and eukaryotic cells. (3,4,5) (COK, CRT, LWC, RES)
26. Work safely in the laboratory as a member of a lab team. (1,3,4,5) (CRT, LWC, RES)
27. Demonstrate proper lab protocol and techniques including pipetting, gel electrophoresis, slide preparation, specimen handling, and mass/volume measurements. (3,4,5) (COK, CRT, LWC, RES)
28. Gather and critically evaluate experimental evidence and draw appropriate conclusions from observations and empirical data. (1,2,4,5) (COK, CRT, ITT, COM, RES)
**Required Texts**


*Tacoma Community College Biology 160 Lab Manual.*

**Grading Policy**

Evaluation is based upon cumulative percentage of total points derived from:

- Lecture Exams
- Lab Reports
- Prelab assignments
- Homework assignments

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>88-89% = B+</td>
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<tr>
<td>B</td>
<td>78-79% = C+</td>
</tr>
<tr>
<td>C</td>
<td>68-69% = D+</td>
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<td>D</td>
<td>0 – 59% = E</td>
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<tr>
<td>A-</td>
<td>92-100% = A</td>
</tr>
<tr>
<td>B-</td>
<td>82-87% = B</td>
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<tr>
<td>C-</td>
<td>72-77% = C</td>
</tr>
<tr>
<td>D-</td>
<td>62-67% = D</td>
</tr>
</tbody>
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**Your grades will be posted regularly on Angel.** You may access them at any time by logging in to the TCC Portal (input your username & password & press the "sign in" button), clicking on the distance learning tab and clicking on the blackboard link.

**Exams, Quizzes & Labs**

- Plan to take the exams and quizzes when they are given.
  - Questions for the quizzes and exams originate from lecture, lab, and assigned readings.
  - One missed lecture exam may be made up during the last week of the semester.
- Pre-lab exercises must be turned in at the beginning of the lab period.
- Lab reports are generally due the next lab period after the period in which we perform the lab unless otherwise stated in class.
  - Please turn your lab reports in at the beginning of the lab period.
  - No photocopies will be accepted.
- **Late assignments.** Assignments MAY be turned in via e-mail. Late assignments will lose 25% of their value every day (Mon-Fri) that they are late.
Supplementary Materials

- **Suggested:**
  Lined paper, pens/pencils, graph paper, calculator, colored pencils.
- **Cost for all materials and supplies** besides handouts, tests, quizzes, labs, etc. (including printing and copying) are to be born by the student.

Conduct

- **Set pagers & cell phones in silent mode before you enter lecture or lab!!!** You will lose 10 points each time your cell phone or pager ringer goes off in class!
- **Attendance is required** at all lecture and laboratory periods. If you are absent from class, it is your responsibility to check on announcements made while you were absent.
- Please arrive promptly. Your instructor reserves the right to restrict entry into the class or lab room 15 minutes after class has begun.
- Please contribute to the learning atmosphere, clean up after yourself, and come prepared to succeed.
- Class participation is expected.
- Only those students are enrolled in this course may be in the classroom. Please do not bring children, friends, visitors, etc. to class with you.
- During lab, you will perform experiments or exercises designed to illustrate some of the principles of Biology. This may include (but not limited to) working with delicate equipment, chemicals, preserved specimens, dissection equipment, etc. **Always conduct yourself in a safe and appropriate manner during the lab sessions.**
- **Food or Beverages are not permitted in the lab room.** You may have food or drink in the lecture halls as long as it doesn’t become disruptive.

Accommodations

**Students with Special Needs:**

Students are responsible for all requirements of the class, but the way they meet these requirements may vary. If you need specific auxiliary aids or services due to a disability, please contact the Access Services office in Building 18 (253) 566-5328. They will require you to present formal, written documentation of your disability from an appropriate professional. When this step has been completed, arrangements will be made for you to receive reasonable auxiliary aids or services. The disability accommodation documentation prepared by Access Services must be given to me before the accommodation is needed so that appropriate arrangements can be made.
Academic Dishonesty

- As stated in the TCC catalog, “Students are expected to be honest and forthright in their academic endeavors. Cheating, plagiarism, fabrication or other forms of academic dishonesty corrupt the learning process and threaten the educational environment for all students.”
- My academic dishonesty policy is as follows:
  - **First offense**: The student will receive a failing grade (“E”) of 0% for the assignment.
  - **Second offense**: The student will receive a failing grade (“E”) in the course and the student services will be contacted for further potential disciplinary action.
- The complete Administrative Process for Academic Dishonesty is available on the TCC website at: www.tacomacommunitycollege.com/stuonline/policies/start.htm

Etiquette for Classroom Dispute Resolution

If you have questions or concerns about this class or me, please come to talk with me first. If we are unable to resolve your concerns, you should next talk with the Chair of the Natural Sciences Department, Rebecca Sliger, room 15-134 (253) 460-4428. The Chair can assist with information about additional steps, if needed.

Course Adjustments

This syllabus and course schedule may be subject to change in the event of extenuating circumstances. **Any changes to assignments, due dates or grading will be announced.**