General topics and matching background readings in Campbell and Reece. Additional assignments are distributed occasionally in class or electronically.

**PART I. BASIC PRINCIPLES AND PROCESSES**

Some organizational matters, And an introduction to science and life.

*Text: Chap 1. Introduction -Themes in the Study of Life*

Physical and chemical foundations. Atoms, molecules, and serendipitous physical conditions

*Text: Chap 2. Chemical contexts*

*Text: Chap 3. Water*

Carbon and a plethora of organic molecules essential to life.

*Text: Chap 4. Carbon*

*Text: Chap 5. Macromolecules*

**PART II. LIFE'S FUNDAMENTAL UNITS - CELLS**

Cells - Some structural and functional considerations.

*Text: Chap 7. A Tour.*

*Text: Chap 8. Membranes*

The Origins of Life - Physics, chemistry and useful macromolecules.

*Text: Chap 6. Metabolism*

*Text: Chap 26. Origin of life. And Figure 28.4 Origin of Eukaryotes*

Chemical Activity, energy, enzymes and life. (*Midterm 1 usually occurs about here.*)

*Text: Chap 9. Respiration,*

*Text: Chap 10. Photosynthesis*

**PART III. THE CODED INSTRUCTIONS THAT ENABLE ALL THIS.**

Leaving Descendants- descendants who can do this too.


Genetics and Inheritance.


*Text: Chap 15. Chromosomes*

DNA - The Code Itself: Translating and transcribing it. (*Midterm 2 usually occurs about here.*)


*Text: Chap 17. Gene to Protein,*

*Text: Chap 18. Microbial Genetics*

Control of Gene Expression


Genetic Engineering and Horizons in Genetics.

*Text: Chap 20. Technology and Genomics*

*Text: Chap 21. Genetic Basis of Development*

**PART IV. EVOLUTION, ECOLOGY, AND THE DIVERSITY OF LIFE**

Kingdoms, Domains, and Revolutions in the History of Life.

*Text: Chap 25. Tracing Phylogeny. (*Midterm 3 usually occurs about here.*)*

*Text: Chap 27. Prokaryotes and the Origins of Metabolic Diversity*

How Life Got Like This - Ecological Theaters and Evolutionary Plays.


*Text: Chap 22. Descent with Modification.*

*Text: Chap 23. Evolution of Populations*

The Bigger Picture: New Forms of Life

*Text: Chap 24. The Origin of Species.*

*(First year biology continues with the eukaryotes, more ecology, and other topics in Biological Science IB)*
I support, in letter and in spirit, the university's policies and procedures on grades, withdrawals, incompletes, and its regulations on cheating and plagiarism, conduct and other standards. These matters are addressed in the University Catalog and in the Schedule of Classes that you used to plan your courses this semester. They are also covered on the CSUF web pages. Please review them if they are not familiar and ask me if any aspect of them is unclear. The catalog and Schedule of Classes also explain your rights as a student under the Family Educational Rights and Privacy Act and The Americans with Disabilities Act. With respect to the latter, contact the appropriate office immediately if you suspect you have a condition which might impact your performance. We can accommodate you if you qualify.

If you wish to drop, have an acceptable serious and compelling reason and drop early in the semester. Allow several days to process the papers. I will not sign drop forms without a report on performance from lab instructors and I can't always reach them quickly. The Dean of Science and Math authorizes withdrawals and will require written verification of the reason for it after the first few weeks. Be prepared for that.
they should because they won’t come see me for help. Some lab instructors may be attending lecture. See them when you can’t find me. They get paid too.

This is a team taught course. It is the stuff that made us biologists rather than attorneys or farmers. We want it to come out well. If you have any guidance that will improve it, we want to hear it.

The lab component will be explained when your lab meets week. Don’t miss that lab! I will drop students who don’t attend (or who don’t notify me that they have another commitment) to make room for students who wish to add the class.

GRADES: The lecture counts for 70% of your course grade. The laboratory accounts for the remainder. Your lab instructors will discuss lab grading with you.

I’ll give three midterms and a final, and the final is comprehensive! The average grade on exams will be at least a "C". I assure this by standardizing or adjusting the "raw" scores just as they standardize the SAT. It’s fair and to your benefit in the event I write an impossible exam (that’s not uncommon). Talk with me about it if you have any questions about the procedure. We also standardize the lab grades at 70% but usually do this at the end. Your lab instructors keep the grade records. Ask them for your scores when you wish to know where you stand in lab. I will not have all of your grade records until the end. If at any time your class standing is not clear to you, ask!

I do not give make-up exams or extra credit but you’ll have ample opportunity to improve your performance. This is because I calculate your final grade in two ways and use whichever method is to your advantage. If you miss a midterm or do poorly on one, I’ll figure your grade based on only your two highest scores, counting them and the final exam more heavily. That’s why the points at (*) would seem to add to more than 70%. It is obviously to your advantage to take and do as well as you can on all midterms to lessen the impact of final.

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<thead>
<tr>
<th>Lecture</th>
<th>Use all exams</th>
<th>Discard low exam</th>
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<tr>
<td>Exam 1 Wed 18 Feb 15%</td>
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<td>Exam 2 Mon 15 Mar 15%</td>
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<td>Exam 3 Friday 16 Apr 15%</td>
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<td>Final Exam Monday 17 May 11AM-1PM subtotal 25%</td>
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GRADE SCALE
A = 85 - 100 %
B = 75 - 85 %
C = 65 - 75 %
D = 55 - 65%
F = 55 or below

Other management matters. This is a GE class in Area B2. Such courses must have writing assignments that satisfy the General Education Writing Requirement. To meet this standard, the laboratory requires reports on your lab work and other written material. Computer facilities are available for your use in many locations on campus including in the Biology Department. We assume you have the required computer skills and will help you if you ask. We also assume you use email so we may communicate when we need to. I am also using Digital Blackboard for announcements, background material, assignments, and communications in this class. You are required to at least provide your email link. If you are absent from class, it is your responsibility to check on announcements made while you were away.
BIOLOGICAL SCIENCE 1A – INTRODUCTORY BIOLOGY
Spring 2004

David Grubbs  Professor of Biology  S - 136  278-3936/2001
email: davidgr@csufresno.edu.  http://zimmer.csufresno.edu/~davidgr/
Office hours: I’ll try to keep Monday 3-5 and Tuesday 3-5 free. Other hours by appointment.
Please call or email ahead. As Associate Dean, I have duties at unpredictable times this semester.

REQUIRED MATERIALS (Available at the Kennel Bookstore)

Cummings, Sixth Edition. Copies of my lecture overheads are also available in the Print and
Copy Center.
LABORATORY: CSUF Laboratory Syllabus for BioSc 1A
EXAM MATERIALS: Scantron #883-ES (for short essay) and No. 2 pencils

ABOUT THE COURSE: BioSc 1A is the introductory course in life science for biology majors
and students who require it reach their career goals. It satisfies the general education requirement in
Area B2. It is a sound introduction to biology for non-science students as well. You’re surely
welcome here but there are other courses that may better meet this requirement for non-science
students. Consult an advisor (or ask me) if you have any doubts.

Since this is a GE class, it must meet the goals for Area B2- Life Science. That goal is to achieve
an understanding of the basic concepts of life science, the nature of scientific knowledge, and the
relevance of biological knowledge to human affairs. Student Learning Outcomes for Area B2: Life
Science are that:

Students completing courses in Area B2 will be able to:
1. Recognize the relevance of biological knowledge to human affairs.
2. Relate the fundamental features and unifying theories of living things, including the
   chemical and physical bases of life and the relationships between living and nonliving
   materials
3. Apply biological concepts to a broad range of organisms and integrate biological
   concepts to further the understanding of human behavior.

The lecture portion is outlined on a page that follows. It is necessarily heavy on the "basics" out of
a belief that solid foundations here will best prepare you to appreciate developments and their
implications at all levels of biology in the future.

The text is important to me. The text should serve to organize and clarify material from lecture
and broaden your perspective of biology in general. If you’ll look over the text before you come to
lecture you’ll gain a great deal more from the course. Many of the questions on exams will come
directly from the text, often on subjects I haven’t touched upon at all. The readings listed on the
course outline are indications of where the lecture topics are covered in the book. Read it for
understanding. Don’t memorize the details without seeing where they fit. I’ve always felt that if an
author provided an illustration, the idea must be of some import. At very least, examine and
understand the pictures! One last tip - a seemingly complex vocabulary is one of the burdens we
carry in science. It’s actually rather easy if you’ll look up word roots and derivations. The text has a
glossary and I find a word root dictionary by Borror of enormous help. It’s in the bookstore in the
basement. If you buy it, carry it with you, and use it.

Please come to me for help with the lecture material. That’s what I get paid for, and that’s what I
enjoy. I am not too busy and you’re not bothering me. Many good students don’t do as well as