1. Desired Term: Spring 2008  
2a. Course abbreviation and Number: EDST E1010  
2b. Abbreviated Title: Cell Biology

4. Number of Units: 3  
5. Billing Units: 0 ($80)

6. Allowed Student Levels:  
   UG X GR X EE X (Default is to check all three levels)

7. Grading Method:  
   _N_ Normal (N) (Default is Letter Grade V. Students may request Credit/No Credit)  
   _NP_ Normal Plus Report-in-Progress (NP) (As for Normal; also allows Report-in-Progress)  
   _C_ Credit/No Credit Only (C)  
   _CR_ Credit/No Credit or Report-in-Progress Only (CP)

8. Mode of Instruction:  
   (See pages 17-23 at https://www.csulb.edu/cm/data-element/ADIP-Transaction-DED-SectionV.pdf for definitions of the Course Classification Numbers)

   Type of Instruction | Number of Credit Units | Instructional Mode (Course Classification Number)
   Lecture | 3 | C-02
   Activity
   Lab

9. Attributes: Course Requires Consent for Enrollment? Yes X No  
   Faculty Credential Analyst Dean Program/Department - Director/Chair

   Prerequisites: Co-requisites:__________

10. Does this course impact other discipline(s)? (If there is any uncertainty as to whether a particular discipline is affected, check “yes” and obtain signature.)  
   Yes X No

   If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

   Discipline Signature Date Support Oppose
   Discipline Signature Date Support Oppose

Important: Please Complete

1. Instructor: Kathy Norman

2. Extension Course Proposal Form (attached)

SIGNATURES: (COLLEGE LEVEL)

1. Kathy Norman 2/4/08

2. [Signature] 2/14/08

3. [Signature] 2/1/08

4. Vice President for Academic Affairs (or Designee)  Date

(UNIVERSITY LEVEL)

1. Program Director/Dean Date

2. [Signature] 2/14/08

3. Dean of Extended Studies (or Designee) Date
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Faculty Information

Faculty Name: Dr. Juliana Texley
Address: Box 215, New Baltimore, MI 48047
Phone: 586.405.3641
Email Address: j.texley@att.net
Juliana.texley@cambridgecollege.edu

Course Title: Cell Biology

Course Description: This 5-week course examines the origin, evolution, fine structure and function of cells. Beginning with single celled prokaryotic organisms in the domains Archaea and Bacteria, the student looks at how cells conduct the processes necessary for life. Students examine the processes through which Eukaryotic cells have evolved, how they differentiate into tissues, organs and systems and review the basics of continuity and genetics.

Students study content and perform weekly assignments, including 2 discussion activities per week. These actions comprise approximately 45 hours of "student seat time." Students taking the course for 3 graduate credits complete a 10-15 page Action Research Paper. The key elements of the project or paper can be assembled from the Topic assignments in the course and will vary according to the needs and future career plans of the student. The Action Research Paper should be approved in advance and may include lesson/unit plans, research papers, web quests or collections of laboratory activities.

Course Delivery: Critical to the professional-development experience of teachers today is learning to function effectively in an online learning environment, one that is destined to expand in the future. Cell Biology is an online course completed in five weeks, with an additional one-week grace period for submitting assignments. Although students may work on assignments offline, all course content, links to supplementary information, interaction among students in the class, class discussions, assessments, submission of assignments, and interaction with the instructor are carried out online, through email and the course site. This online format is designed for educators who need access to professional development on a flexible schedule and who are in different locations worldwide. Not all participants in this course will earn college credit; some are earning CEUs or auditing. Students earning college credit are required to participate in advanced discussions and complete all assignments.

Course Objectives/Outcomes:
Performance Objectives
In this course, students will:
1. Develop deep content knowledge of the structure and function of cells, tissues and organisms.
2. Develop deep content knowledge of the current status of evolutionary research at the cellular level.
3. Become competent in the use of online tools developed for the study of cell biology, including TIGR and other genome databases, and tools for teaching cell biology.
4. Become competent in the techniques for making new biology relevant and discussing bioethical issues.
Lesson Plans

Topic One: A Tale of Three Cells
This topic begins to highlight the differences between cells in the three domains and how their cells differ. Basic differences define the three domains of life.

Major Ideas:
A. Archaeans
B. Bacteria vs. Archaea
C. Bacterial Structure
D. Endosymbiotic Hypothesis
E. Multicellular organisms
F. Respiration
G. Photosynthesis
H. Relationship between taxonomy and evolution; current changes

Topic One assignments:
  a) Create a student home page, becoming participants in the community of learners.
  b) Declare the nature of the credit sought – Graduate, CEU, or Audit.
  c) Demonstrate competence in course content. A quiz on course documents is provided.
  d) Complete a web quest looking for examples of cells/organisms in various taxonomic categories, emphasizing new and obscure taxonomic groups such as extremophiles.
  e) Compare and discuss the suggested content benchmarks for cell biology in the National Science Education Standards at http://books.nap.edu/html/nses/html/index.htm

Topic Two: Continuity
This Topic explores continuity in cells, emphasizing the latest information on genetics. All organisms on Earth use nucleic acids to pass on their genetic information for the construction of proteins.

Major Ideas:
A. DNA and RNA
B. Mendel and the Missing Messages
C. Honey there's a Red-eyed Fly in My Soup; Morgan and sex-linkage
D. No Gene Is an Island; Gene interaction
E. Human Genome Project; state of our knowledge
F. Conquering Human Disease
G. Bioinformatics; using BLAST and other TiGR databases
H. Visualizing proteins

Topic Two assignments:
  a) Use NIH databases to research an unknown genome and an unknown protein, and then create their own "mystery story" using the same tools.
  b) Complete mastery of course documents. A quiz on course documents is provided.

Topic Three: The Cell Machine
This Topic looks at the relationship between structure and function in cell organelles. Cells differ in the ways in which they complete basic life functions. In Eukaryotes, the results of the collaboration of ancient symbionts have created efficiencies in cell metabolism.

Major Ideas:
A. Beyond the Imagination; light and electron microscopy
B. Twist, fold and flip; structure of cellular membranes

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C. Nutrition and Digestion
D. Sensation and Stimuli
E. Gotta Move; microfibrils and contractile proteins
F. Detoxification and Excretion
G. Control and Communication
H. Reproduction

Topic Three assignments:
   a) Research a disease related to cell structure and function and the symptoms manifest in the cell (emphasis on mitochondrial diseases.)
   b) Demonstrate mastery of course documents. A quiz on course documents is provided.
   c) Develop a list of topics and resources for the Active Research Paper and submit it to the Instructor.

Topic Four: Onward and Inward
This Topic looks at the tissues, organs and systems of Eukaryotes. Cells differentiate to cooperate in Eukaryotic tissues.

Major Ideas:
   A. Differentiation
   B. Organs and Systems
   C. What is “Me?” Immunology and self-recognition
   D. Keeping Fit; Metabolism and fitness
   E. The Body Electric; The neuron
   F. Improved Animals and Humans; Genetic modification
   G. Designer Drugs
   H. Stem Cells

Topic Four assignments:
   a) Compare a variety of sources to analyze misconceptions in biology and health texts.
   b) Demonstrate mastery of course documents. A quiz on course documents is provided.
   c) Conduct research on the Action Research Paper using approved resources and submit your findings to the Instructor.

Topic Five: The Search for Alien Cells
This Topic covers new frontiers in cell biology. It emphasizes the challenges that face us in both science and bioethics, and outlines the parameters through which we will search for life on other planets. There is enormous variety in living cells, both natural and genetically engineered.

Topic Five topics include:
   A. Use of bacteria for genetic engineering
   B. Genetically modified foods
   C. Cloning
   D. Catch me if you can
   E. Whose new flu? Virus mutation and world health
   F. HIV/AIDS
   G. Unchecked Growth: Cancer
   H. Looking for life in all the wrong places—for extremophiles and planetary biology

Topic Five assignments:
   a) Prepare an analysis of three of the careers featured in the course - compare the preparation requirements, how the career has changed due to new discoveries in medical science, and the future forecasts for the career.
   b) Take a quiz on course documents.
   c) Submit the final Action Research Paper to the Instructor. If appropriate, seek input from your peers in online forums.
   d) Complete the JASON Course Survey

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Texts (required readings): Course Content found in Blackboard
   a) JASON Cell Biology (online text)
   b) The Web of Life Project www.tolweb.org
   c) Weblift to the Taxa www.weblift.ucmp.edu

Bibliography (required and optional readings): Course Content found outside Blackboard

Student Evaluation Process:

Cell Biology includes quizzes, assignments and discussion. Students taking the course for 3 credits must also complete a 10-15 page Action Research Project. The final grade for this course is based on completion of the course assignments (50%), substantive participation in weekly discussions (25%), and performance on assessments (25%).

* Students not taking the course for graduate credit do not have to complete the Research Paper and must obtain at least 70 points to pass the course

* Students taking the course for graduate credit will be graded according to the Plus/Minus Grading Scale:

- A+ 97-100
- A  94 - 96.99
- A-  90 - 93.99
- B+  87 - 89.99
- B  84 - 86.99
- B-  80 - 83.99
- C+  77 - 79.99
- C  74 - 76.99
- C-  70 - 73.99
- D  60 - 69.99
- F  50 >
Juliana Texley, Ph.D.

Box 215, New Baltimore, Mi 48047
J.Texley@alt.net
586-405-3641

Experience

2000-Present  Technical writer, Educator

Science Education/Science Instructor
- Cambridge College (2002-Present) Science and Science Education
- Instructor: Online Learning, Multimedia, Technology and Assessment, Central Michigan University (1998-Present)
- Facilities consultant, National Science Education Association
- Instructor: Safety, Assessment, Online Instruction, Cell Biology and Ocean Science, Jason Academy (2001-Present)
- Instructor, Biology Palm Beach Community College (2000-Present)
- Science Chair, Michigan SCoPE Online Project (Dept. of Treasury) (2002-2004)
- Web Editor, National Science Teachers Association (2001-2005)

1993–2000  Anchor Bay School District  New Baltimore, Mi

Superintendent of Schools
- Brought district from deficit to $5 million in equity
- Negotiated all contracts, including 5 expedited MEA contracts
- Passed and personally coordinated 5 bond issues for 5 schools, $240 mil.
- Raised test scores and led professional development efforts
- Leadership positions in Chamber of Commerce, United Way

1990-93  Anchor Bay School District  New Baltimore, Mi

Assistant Superintendent/Curriculum
- Wrote competitive grants totaling over $1 million.
- Raised state test scores for three consecutive years.
- Developed new and innovative professional development programs.
- Wrote and implemented Michigan Systemic Initiative grant for improvement in mathematics and science
- Taught science and science education for 3 universities

1973-90  Richmond Schools  Richmond, Mi
- Taught middle and secondary science and mathematics
(1 year leave to lead science department at University Liggett in 1984)

Educational Background

1969  Oakland University  Rochester, Michigan
- B.A., Biology, Chemistry/physics.
- Graduated Summa Cum Laude.

1972  Wayne State University  Detroit, Michigan
- M.S., Biology.

1980  Wayne State University  Detroit, Michigan
- Ph.D.
- Curriculum Development
Interests and awards:

Editor of *The Science Teacher* for 12 years (including editing award-winning series such as *Difficult Decisions* bioethics articles.)

Fellow of the American Association for the Advancement of Science 2003

Presidential Award for Science Teaching, 1984

EdPress Award for outstanding publication (*Pathways*, 1996)


Ms Zip Award for Community Service, 2000

Selected Publications and Workshops:

*Discovering the Science of Alcohol.* (Grant from NIAAA), 2007

"Do you have a platform to stand on?" (with David Adelstein), *The Science Teacher*, October, 2006.


*The Bear, the Rose and the Swan.* (Fiction) Saga Books, 2005.


“Pitfalls and Promises: Mentoring New Teachers” Louisiana State University, October, 1998.


Advances in Genetic Technology. (Advisory board member for program that taught genetics and bioethics for secondary students) BSCS 1989

(Over 100 publications from 1980-2006 in biology, technology and education)

References:

(Beyond Central Michigan University)

Marilly DeWall, Director (emeritus) JASON Academy www.jason.org

David Beacom, Director of Publications, National Science Education Association,
dbeacom@nsta.org