Eastfield College
Science and Physical Education
Standard Syllabus Biology 2421
Microbiology for Science Majors
Semester

Course Title and Number – in the header

Microbiology for Science Majors
Biology 242 – Section number

Class Time

Lecture days of the week and time
Lab days of the week and time

Instructor Name and Office Hours

Instructor
Office Location
Office Hours or for adjuncts by appointment
Office Phone
E-mail Address
Web Address

Course Description – in Eastfield College catalog

A study of the morphology, physiology, and taxonomy of representative groups of pathogenic and non-pathogenic organisms. Emphasis is placed on relationships that influence humans: public health, infectious diseases, and immunology, biotechnology, and environmental and industrial applications. Lab experimentation with pure cultures and selected media will be used to study extensively the medical, environmental, and industrial importance of these microbes. Designed for students in science or pre-professional programs. (3Lec., 4Lab.) (Coordinating Board Academic Approval Number 2605035103)

Prerequisites

Biology 1406, Biology 1407 and Chemistry 1411.

Textbooks

A. Required:

Microbiology: An Evolving Science, 15nd edition, Sloanczewski, Joan, I. and Foster, John, W. W. Norton & Company, 2008, New York, NY. ISBN 978-0-393-97857-5.

Microbiology: Laboratory Theory and Application, 2nd edition, Leboffe, Michael, J. and Pierce, Burton, E., Morton Publishing Company, 2006, Englewood, CO. ISBN 0-89582-708-5.

B. Recommended:

Stedman's Medical Dictionary, any edition, Stedman, T. L., Lippincott Williams and Wilkins, 2000 Baltimore, MD, ISBN 0-683-40007-X.

Exemplary Educational Objectives

1. To understand and apply method and appropriate technology to the study of natural sciences.
2. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
3. To identify and recognize the differences among competing scientific theories.
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
5. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Core Curriculum Intellectual Competencies (CCIC)

This course reinforces all 6 of the Core Curriculum Intellectual Competencies defined by the Texas Higher Education Coordinating Board.

1. **READING**: Reading at the college level means the ability to analyze and interpret a variety of printed materials--books, articles and documents. A core curriculum should offer students the opportunity to master both general methods of analyzing printed materials and specific methods for analyzing the subject matter of individual disciplines.
2. **WRITING**: Competency in writing is the ability to produce clear, correct and coherent prose adapted to purpose, occasion, and audience. Although correct grammar, spelling and punctuation are each a sine qua non in any composition, they do not automatically ensure that the composition itself makes sense or that the writer has much of anything to say. Students need to be familiar with the writing process including how to discover a topic and how to develop and organize it, how to phrase it effectively for their audience. These abilities can be acquired only through practice and reflection.
3. **SPEAKING**: Competence in speaking is the ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion and

audience. Developing this competency includes acquiring poise and developing control of the language through experience in making presentations to small groups, to large groups and through the media.

4. **LISTENING**: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.

5. **CRITICAL THINKING**: Critical thinking embraces methods of applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is one of the applications of critical thinking, used to address an identified task.

6. **COMPUTER LITERACY**: Computer Literacy at the college level means the ability to use computer-based technology in communicating, solving problems and acquiring information. Core-educated students should have an understanding of the limits, problems and possibilities associated with the use of technology and should have the tools necessary to evaluate and learn new technologies as they become available.

Learning Outcomes

To provide an understanding of the life processes, using microorganisms as the prototype of living things. Provide a foundation for future courses in biology, especially advanced microbiology and a background for the professions such as agriculture, food science, public health and medicine. Provide a background for an understanding of the scientific method and the knowledge to understand the scope of ecology and environmental science.

Course Outline

Week	Topic	Chapter
1.	Microbial Life: Origin and Discovery	1
	Observing the Microbial Cell	2
2.	Cell Structure and Function	3
	Bacterial Culture, Growth, and Development	4
3.	Environmental Influence and Control of Microbial Growth	5
4.	Virus Structure and Function	6
	Genomes and Chromosomes	7
5.	Transcription, Translation, and Bioinformatics	8
	Gene Transfer, Mutations, and Genome Evolution	9
6.	Molecular Regulation	10
	Viral Molecular Biology	11
7.	Molecular Techniques and Biotechnology	12
	Energetics and Catabolism	13

8.	Respiration, Lithotrophy, and Photolysis	14
	Biosynthesis	15
9.	Food and Industrial Microbiology	16
	Origins and Evolution	17
10.	Bacterial Diversity	18
	Archaeal Diversity	19
11.	Eukaryotic Diversity	20
	Microbial Habitats and Communities	21
12.	Microbes and the Global Environment	22
	Human Microflora and Nonspecific Host Defenses	23
	The Adaptive Immune Response	24
13.	Microbial Pathogenesis	25
14.	Microbial Diseases	26
	Antimicrobial Chemotherapy and Resistance	27
15.	Clinical Microbiology and Epidemiology	28

Grading Procedure

Exams

4 Major lecture exams***** – 100 points each = 400 points
3 Laboratory exams – 100 points each = 300 points
A Laboratory report based on the identification of unknown bacteria – 100 points.
Instructor evaluation of student performance including attendance – 100 points.

Final grade

810 – 900pts	=	90 – 100%	=	A
720 – 809pts	=	80 – 89%	=	B
630 – 719pts	=	70 – 79%	=	C
540– 629pts	=	60 – 69%	=	D
0 - 539pts	=	0 - 59%	=	F

*****Make – up Exams

A comprehensive lecture exam will be given in case of a missed examination. If a laboratory practical is missed, you will receive a grade of **ZERO** for the exam.

Writing Across the Curriculum

Science courses at Eastfield College follow a principle of "Writing Across the Curriculum." Each course incorporates a writing element. Writing is a critical part of communication of ideas, and is important in the synthesis and analysis of scientific concepts. The laboratory report based on the identification of the unknown bacteria will complete this requirement.

Financial Aid Students

If you are receiving Financial Aid grants or loans, you must begin attendance in all classes. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds. Failure to contact the instructor will result in your name being submitted to the Financial Aid Office as a "non-attendee. All students receiving financial aid must open an Email account through NetMail. See directions in this syllabus for opening an Email account.

ACADEMIC HONESTY:

The purpose of the Student Code of Conduct is to provide guidelines for the educational environment of The Dallas County Community College District. Such an environment presupposes both rights and responsibilities. Disciplinary regulations at the college are set forth in writing in order to give students general notice of prohibited conduct. Students should be aware of disciplinary actions for all forms of academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion. Your College Catalog and the DCCCD Catalog contain the entire Student Code of Conduct, which is also on the Internet at http://dcccd.edu.

PLAGIARISM:

In any written paper, you are guilty of the academic offense known as plagiarism if you half-copy or copy the author's sentences or words. Usually this results in an automatic grade of "F" for the course. You cannot mix the author's words with your own or "plug" your synonyms into the author's sentence structure. To prevent unintentional borrowing, resist the temptation to look at the source as you write. The author's words, phrases, sentences must be put in your words, in your way of writing. When you do this, you are demonstrating the ability of understanding and comprehension.

Withdrawal Policy

If you wish to drop the course with a grade of **"W"** you must complete the necessary forms by contacting Admissions counseling or PE/Science Division office no later than **(The Required Drop Date Stated)**. An instructor cannot withdraw a student. Your instructor is **NOT** responsible for initiating or recommending this action. Failure to withdraw will result in the student receiving a performance grade based on the criteria contained in this syllabus.

EMERGENCY/INCLEMENT WEATHER PROCEDURE:

In case of emergency or inclement weather conditions, Eastfield students should listen to KEOM-FM Radio Station (88.5) as the primary media source. In partnership with the Mesquite Independent School District, Eastfield College Administration will notify KEOM immediately after a decision is made to cancel classes on any given day of inclement weather or for emergency purposes. Students may also monitor other local radio and television stations. The earliest an announcement may be broadcast on KEOM Radio is 6 a.m. Students may also refer to the Eastfield College web page www.eastfieldcollege.com for the Inclement Weather announcement

under the Features area of the front page. **The announcement will be posted immediately following the decision to close the college.**

REPEATABILITY ISSUE:
Pending legislative action and DCCCD Board approval, effective for Fall Semester 2005, the Dallas County Community Colleges will charge a higher tuition rate to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in higher tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 semester. For complete information and updates, go to: http://www.dcccd.edu/ThirdCourseAttempt/.

STOP BEFORE YOU DROP
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a "W". Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

STUDENT E-MAIL:
Legal privacy issues prevent your instructor from discussing your work or your grades on commercial e-mail accounts. If you wish to send your papers as attachments to an e-mail (and the instructor permits it), or if you have a question about your grade, you must open a student e-mail account. The account is free. You may set it up by going to www.dcccd.edu and click on Student Services, Online Services, and Student NetMail. All students receiving financial aid must open a student NetMail account.

RELIGIOUS HOLIDAYS/OBSERVANCES:
Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the college catalog section on *Student Responsibilites*.

ADA Services:
Students with a physical, mental or learning disability who require accommodations should contact the college Disability Services Office in C237. Call 972-860-8348 or email efcdso@dcccd.edu. For more information: http://www.eastfieldcollege.edu/SSI/DSO/idex.html.

FAMILY EDUCATIONAL RIGHTS and PRIVACY ACT of 1974 (FERPA)
In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), the College may release information classified as "directory information" to the general public without the written consent of the student. Directory information includes: (1) student name. (2) student address, (3) telephone numbers, (4) date and place of birth, (5) weight and height of members

of athletic teams, (6) participation in officially recognized activities and sports, (7) dates of attendance, (8) educational institution most recently attended, and (9) other similar information, including major field of student and degrees and awards received. Students may protect their directory information at any time during the academic year. If no request is filed, directory information is released upon written inquiry. No telephone inquiries are acknowledged. No transcript or academic record is released without written consent from the student, except as specified by law.

OBTAINING YOUR GRADES AT THE END OF THE SEMESTER:

Grade reports are no longer mailed. Convenient access is available online or by telephone. Just use your student identification number when you log in to e-Connect or call DCCCD Touch Tone Services. Web site address: http://econnect.dcccd.edu/. Telephone number: 972-613-1818.

CLASSROOM ENVIRONMENT: (describe your expectations related to drink/food in the classroom, cell phones, PDAs, laptops, etc, what about coming in late to the class? Leaving early? What are the consequences for such behavior?)

PRINTING ON CAMPUS: Printing in the Computer Lab (L-108), Library, and Learning Assistance Center will cost 5 cents a page. Students must bring a $1.00, $5.00, $10.00, or $20.00 bill to the lab to create an account. Accounts must be created before attempting to print. No change is made in the lab. Once the money is in the bill acceptor, it cannot be retrieved. Cash refunds are not possible. Accounts stay active as long as the account has value.

The guidelines in this syllabus may be changed, deleted, or amended at any time by the instructor.