



Course BIOL 3335, Microbial Physiology
Professor L. Reitzer
Term Fall 2007
Meetings M W 10:00 AM – 11:15 PM; FO 3.222

Professor's Contact Information

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Office Hours 10 AM – 6 PM weekdays
Other Information Best way to contact me is at my office. I am slow to read email or return telephone messages. I don't read WebCT

General Course Information

Pre-requisites, Co-requisites, & other restrictions One semester of biochemistry

Course Description Microbes have been and still are models for the understanding of general biological phenomena, such as nutrition, metabolism and biochemistry; protein and nucleic acid synthesis; energy generation, enzyme regulation, membrane transport, motility, differentiation, cellular communication and the behavior of populations. This course will emphasize the unique features of microbial life including energy generation; how microbes adjust to their environment, such as changes in genetic expression; and integration of all aspects of metabolism and cell biology required to produce a living cell.

Learning Outcomes This course is a substitute for Biochemistry II, and will cover all the basic metabolic pathways. However, only microbial metabolism will be considered. You are expected to understand basic concepts of energy generation, transport, photosynthesis, lipid metabolism, amino acid and nucleotide synthesis, the action of antibiotics, bacterial genetics, bacterial gene expression and its regulation, and microbial stress.

Required Texts & Materials Microbial Physiology, Fourth edition, by Moat, Foster, and Spector (2002)

Suggested Texts, Readings, & Materials

Assignments & Academic Calendar

[Topics, Reading Assignments, Due Dates, Exam Dates]

APPROXIMATE SCHEDULE

Aug 20 Chap. 1: Introduction to Microbial Physiology
Aug 22 Chap. 8: Central Pathways of Carbohydrate Metabolism
Aug 27 Chap. 9: Energy Production and Metabolite Transport
Aug 29 Chap. 9 continued and Chap 10: Catabolic Pathways
Sept 5 Chap. 11: Fermentation Pathways
Sept 10 Chap. 12: Photosynthesis and Inorganic Metabolism
Sept 12 Chap. 13: Lipids and Sterols

Sept 17	Test 1: Lectures 1-7, Energy Metabolism and Lipids
Sept 19	Chap. 14: Nitrogen Metabolism
Sept 24	Chap. 15: Amino acid synthesis I
Sept 26	Chap. 15: Amino acid synthesis II
Oct 1	Chap. 15: Amino acid synthesis III; Chap. 16: Purines and Pyrimidines I
Oct 3	Chap. 16: Purines and Pyrimidines II
Oct 8	Chap. 2: Macromolecular Synthesis I
Oct 10	Chap. 2: Macromolecular Synthesis II
Oct 15	Test 2: Lectures 9-15, Amino Acids, Nucleotides, and Macromolecules
Oct 17	Chap. 2: Antibiotics & Chap. 3: Plasmids
Oct 22	Chap. 3: Plasmids, Conjugation, Transformation
Oct 24	Chap. 3: Transduction and Recombination
Oct 29	Chap. 3: Recombination, Restriction-modification
Oct 31	Chap. 4: Microb Physiol in Genomic Era I
Nov 5	Chap. 4: Microb Physiol in Genomic Era II
Nov 7	Test 3: Lectures 17-22, Genetics and Gene Expression
Nov 12	Chap. 5: Regulation of Gene Expression I
Nov 14	Chap. 5: Regulation of Gene Expression II
Nov 19	Chap. 18 Microbial Stress I
Nov 21	Chap. 18 Microbial Stress II
Nov 26	Chap. 7: Cell Structure and Function
Nov 30	TEST 4 Lectures 24-28 (8 AM)

Course Policies

Grading	The exams will contain a combination of multiple choice and short essay questions. The exams are not comprehensive. The grade will be based on the average of 4 exams, and will be based on a curve. For the last two years, the grade distribution was A (~40%), B (~40%), and C or worse (~15%).
Make-up Exams	Make-up exams will be provided in the event of illness (doctor's note required), official university business (e.g., athletic team), or professional school (e.g., medical school) interviews. Since religious holidays are known in advance, I must be informed of them at the beginning of the semester. Scheduled trips well in advance are acceptable, but I must be informed of them early (not one or two days before an exam). Make-up exams may be different from regular exams, and may include a verbal component to test for understanding. Under no circumstances will two make-up exams be allowed.
Extra Credit	none
Late Work	Not applicable
Special Assignments	none
Class Attendance	Desirable but not required
Classroom Citizenship	
Field Trip Policies	Not applicable
Student Conduct and Discipline	The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General

	<p>information on student conduct and discipline is contained in the UTD publication, <i>A to Z Guide</i>, which is provided to all registered students each academic year.</p> <p>The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).</p> <p>A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.</p>
<p>Academic Integrity</p>	<p>The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.</p> <p>Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.</p> <p>Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p>
<p>Email Use</p>	<p>The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.</p>
<p>Withdrawal from Class</p>	<p>The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you</p>

	are enrolled.
Student Grievance Procedures	<p>Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>.</p> <p>In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.</p> <p>Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.</p>
Incomplete Grades	<p>As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.</p>
Disability Services	<p>The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.</p> <p style="text-align: center;">The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY)</p> <p>Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.</p> <p>It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class</p>

	or during office hours.
Religious Holy Days	<p>The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.</p> <p>The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.</p> <p>If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.</p>
Off-Campus Instruction and Course Activities	<p>Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean.</p>

These descriptions and timelines are subject to change at the discretion of the Professor.