Undergraduate Programs—COURSE CHANGE REQUEST

<table>
<thead>
<tr>
<th>DEPARTMENT: BIOLOGICAL SCIENCE</th>
<th>COLLEGE: COLLEGE OF SCIENCE</th>
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<tbody>
<tr>
<td>COURSE PREFIX AND NUMBER: MCB 3020</td>
<td>CURRENT COURSE TITLE: GENERAL MICROBIOLOGY</td>
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<tr>
<td>CHANGE(s) ARE TO BE EFFECTIVE (LIST TERM): FALL 2013</td>
<td>TERMINATE COURSE (LIST FINAL ACTIVE TERM):</td>
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<td>CHANGE TITLE TO:</td>
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<td>CHANGE PREFIX FROM:</td>
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<td>CHANGE COURSE NO. FROM:</td>
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<td>CHANGE CREDITS</td>
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<td>CHANGE GRADING FROM:</td>
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<tr>
<td>CHANGE WAC/GORDON RULE STATUS</td>
<td>ADD</td>
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<tr>
<td>CHANGE GENERAL EDUCATION REQUIREMENTS</td>
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*WAC and General Education criteria must be clearly indicated in attached syllabus. For WAC Guidelines: [www.fau.edu/WAC](http://www.fau.edu/WAC). Please attach General Education Course Approval Request: [www.fau.edu/deanofstudies/GeneralEdCourseApprovalRequests.php](http://www.fau.edu/deanofstudies/GeneralEdCourseApprovalRequests.php)*

Attach syllabus for ANY changes to current course information.

Should the requested change(s) cause this course to overlap any other FAU courses, please list them here.

Please consult and list departments that might be affected by the change(s) and attach comments.

Faculty contact, email and complete phone number:
David Binninger; binningge@fau.edu; 561.297.3323

Approved by:
Department Chair:
College Curriculum Chair:
College Dean:
UUPC Chair:
Undergraduate Studies Dean:
UFS President:
Provost:

Date:
Mar. 14, 2013

1. Syllabus must be attached; syllabus checklist recommended; see guidelines and checklist: [www.fau.edu/academic/registrar/UUPCinfo](http://www.fau.edu/academic/registrar/UUPCinfo)
3. WAC approval (attach if necessary)
4. Gen. Ed. approval (attach if necessary)
5. Consent from affected departments (attach if necessary)

Email this form and syllabus to mjenisng@fau.edu seven business days before the University Undergraduate Programs Committee meeting so that materials may be viewed on the UUPC website prior to the meeting.

FAUchange—Revised September 2012
General Microbiology (MCB 3020) CRN# 19163 Syllabus, Fall 2013, FAU, Joseph P. Caruso, Ph.D., Instructor. Classes meet T/Th, 2:00-3:20 PM, GN 101. Course prerequisites are CHM 2045, 2045L, 2046, 2046L and BSC 1010, 1010L, 1011 & 1011L Minimum grade of C-. Corerequisite: None This 3 credit hour course covers general microbial knowledge for College of Science & pre-professional students (not nursing students!). A survey of microbiological concepts, microbial types, and the use of microorganisms in medicine, agriculture, and industry. This course is suitable for students with disabilities and works with the Office for Students with Disabilities (OSD) to accommodate them and also accommodates Religious Holidays (see Instructor for more details)

Disability policy statement
In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

I. Text: Willey et al’s Prescott's Microbiology, 8th Ed. (several ISBNs) is the text; you must have this or the 7th edition. You must also buy Connect access (included in the cost of new texts from the University Bookstore or you can buy it from McGraw-Hill). Ten Microbes in Motion CD-ROMs are in the Boca Library Course Reserves which you may check out for up to 1 hr.

II. A. Class Policies: All classes are required; you’re responsible for everything we do/assign. Before class begins, all beepers, ’cell phones & other electronics must be turned off; items left on are subject to confiscation. Students using cell 'phones/other electronic devices in class will be penalized up to 100 points (pts)/violation. You must be silent if I ask; anyone disrupting class (including talking if I ask for silence) must hand over their iClicker and leave and will also get a 10 pt penalty. Students with non-medical electronics during class or exams or who have >1 iClicker will get any punishment I see fit, up to an F and an academic irregularity on their transcripts- no exceptions!

B.: Cheating/plagiarism will result in a zero and all other punishments allowable, up to getting an F in the course and an academic irregularity! Please refer to FAU's Academic Code of Conduct, posted on Blackboard (Bb) for more information! Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf

III. A. Grading: Official FAU Policy forbids me from discussing Grades by e-mail or telephone! There are 4 hourly Exams (100 pts @), unannounced in-class assessments & homework worth 100 pts & one (1) non-cumulative 150 pt Final, for 650 total pts. At my discretion, exams may be curved so the average is 75%. Your final grade is the % you earn (exam + assessments/homework + any curve pts + any extra-credit - penalty pts, divided by total course pts). The grading scale is: A=>92.5; A-=89.5-92.4; B+=86.5-89.4; B=82.5-86.4; B-=79.5-82.4; C+=76.5-79.4; C=72.5-76.4; C-=67.5-72.4; D+=64.5-67.4; D=59.5-64.4; D-=55.5-59.4; F=<57.4. Allow at least >7 days after exams for grades to be posted! If you get <50% on any exam, you should drop the class!
B: To receive a Final Grade, all students must complete all assigned homework and take at least 75% of in-class assessments. A 10 pt penalty will be given for each unfinished homework and to all students who complete less than 75% of in-class assessments.

IV. Exams. A: All exam/assessment questions are multiple choice or True/False; all are worth 2 pts at (no partial credit). Hourly exams have 50 questions; the Final has 75.

It’s your job to know how to take exams (below). I’ll provide answer forms, pencils & erasers for exams. -->You’ll have just 2 weeks after exam grades are posted & 1 month after the class ends to review exams/grades! <--

B. I’ll assign you a 4-digit personal identifying number (PIN) to use on exams; don’t change it or you’ll get penalized 10 pts. Grades will be posted by your PIN.

C. Don’t make any marks on answer forms except your answer choices, your name, PIN, test number and date, as directed by exam instruction sheets.

D. Mark your choices boldly with the darkest mark you can make. If you must erase, do it completely (don’t leave dark marks in or near bubbles!).

E. You must be silent during exams. If you don’t understand a question/answer choice on an exam, raise your hand and I’ll come and explain it (I won’t give you the answer or a hint, though!). Anyone talking is subject to a Zero on the exam and/or the course!

F. When done, you must sign out of all exams. Bring your exam, photo ID, answer form and pencil, sign the sign-out sheet, write your PIN and hand in your pencil. If you forget your ID, you’ll have 24 hours to provide it (you can photocopy it or send an e-mail with the ID scanned in as an attachment).

V. Make-Up Exams, A: If you’ve a conflict, you must contact me seven (7) days in advance or immediately afterwards to request a make-up. You may not have a friend do this- you must do it! Please remember the following:

B. Make-ups are granted at my discretion (not yours), for valid reasons only!

C. Valid reasons include personal/family illness or death, car accident/failure, jury or military duty, etc. and must have written documentation. Invalid reasons include any social occasion (weddings, vacations, etc.) or work, so don’t bother asking!

D. I always require written documentation before arranging a make-up exam!

E. I’ll arrange make-ups only for two weeks after grades are posted; after that, I will decide on a case-by-case basis!

F. There is no guarantee that make-up exams will be identical, use the same format or even be similar to the exam the rest of the class took- this means I’m free to give an essay test as a make-up exam if I feel this is warranted.

G. I reserve the right to give any make-up exam at the end of the semester!

VI. Attendance/in-class assessments, keypad use and registration: Attendance will be tracked by iClickers, using in-class assessments. This means you must buy an iClicker; if you’ve already got one, you can use it. We’ll register iClickers in class. It’s your responsibility to: 1) always bring your working iClicker to class; 2) register it properly; 3) study all material in-class assessments may cover; 4) be in class when assessments are given. None will be held the 1st day, but any later class may have in-class assessments, given at any time during class. All in-class assessments are mandatory and must be taken by everyone! There are two types: formative assessments
knowledge & teaching; these won’t count, but will have questions/answers in script (e.g. Krebs cycle). Summative assessments will count; these are in standard font (e.g. glyoxylate cycle). No make-ups will be given for these, but your three lowest scores will be dropped, since we'll be giving 12-15 summative assessments! See the Bb document on Grading for in-class assessments re: more information on curve points, etc.

VII. A-Extra-Credit: If you consent to allow my publishing class performance results, I'll give you 12 pts extra-credit! I may or may not include extra-credit in other forms, such as Bb quizzes. I'll notify the whole class about these by e-mail if I use them.

B- Office Hours, 'phone & e-mail: My office is 286 Sanson Science, my 'phone is 561-297-4474 & my e-mail is JCARUS11@fau.edu. Office hours (hrs) are 11AM-1PM T & Th or by appointment (only I can set these!). Don’t camp outside my door if office hrs aren't in session! E-mail is the easiest way to reach me. Office hrs end at 1 PM on T, 23 April; none will be held thereafter! After Final Grades are posted, I’ll hold office hrs two days for students to review their class performance (or lack thereof)!

VIII. Class/Exam Schedule:

<table>
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<tr>
<th>Day</th>
<th>Topic(s)</th>
<th>Homework- Reading Assignments: Chpt(s)</th>
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<tbody>
<tr>
<td>T, 8 Jan.</td>
<td>Microscopy, Procaryot. Cell Strctr./Fxn.</td>
<td>2*-3*</td>
</tr>
<tr>
<td>Th, 10 Jan.</td>
<td>Procaryot./Eucaryot. Cell Strctr./Fxn.</td>
<td>3*-4*</td>
</tr>
<tr>
<td>T, 15 Jan.</td>
<td>Microbial Nutrition &amp; Growth</td>
<td>6*-7*</td>
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<tr>
<td>Th, 17 Jan</td>
<td>Exam #1, 100 pts.</td>
<td>2*-4, 6-7*</td>
</tr>
<tr>
<td>T, 22 Jan.</td>
<td>Microbial Control &amp; Killing</td>
<td>8</td>
</tr>
<tr>
<td>Th, 24 Jan.</td>
<td>Microbial Metabolism: Energy &amp; Enzymes</td>
<td>9</td>
</tr>
<tr>
<td>T, 29 Jan.</td>
<td>Metabolism: Catabolism</td>
<td>10</td>
</tr>
<tr>
<td>Th, 31 Jan.</td>
<td>Metabolism: Biosynthesis</td>
<td>11</td>
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<tr>
<td>T, 5 Feb.</td>
<td>Exam #2, 100 pts.</td>
<td>8-11</td>
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<tr>
<td>Th, 7 Feb.</td>
<td>Genes: DNA structure, replication</td>
<td>12*</td>
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<td>T, 12 Feb.</td>
<td>Gene expression, regulation</td>
<td>13*</td>
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<tr>
<td>Th, 14 Feb.</td>
<td>Mutation/repair, genetic recombination</td>
<td>14*</td>
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<tr>
<td>T, 19 Feb.</td>
<td>Recombinant DNA technology</td>
<td>15*</td>
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<tr>
<td>Th, 21 Feb.</td>
<td>Genomics</td>
<td>16*</td>
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T, 26 Feb.            Exam #3, 100 pts.  12*-16*
Th, 28 Feb.           Viruses  5, 25*
F, 1 March           Last day to withdraw without a WF on transcript
M-Sunday, 4-10 March No classes-Spring break!
T, 12 March           Viruses (cont.); Bacterial classification  5, 25*; 17*
Th, 14 March          Archaea; Deinococci & Nonproteobacteria Gram -  18*; 19*
T, 19 March           Proteobacteria Gram -  20*
Th, 21 March          Exam #4, 100 pts.
T, 26 March           Food & Beverage Microbiology  40*
Th, 28 March          Symbiosis/Microbiota; Immune Cell Function  30,* 32*
T, 2 April            Non-specific Immunity/Resistance Mechanisms  32*
Th, 4 April           Specific Immunity  33*
T, 9 April            Pathogenesis of Bacterial Diseases, Toxins  31*
Th, 11 April          Epidemiology  31*
T, 16 April           Selected Human Bacterial Diseases, I  38*
Th, 18 April          Selected Human Bacterial Diseases, II  38*
T, 23 April           Office Hours End at 1 PM
T, 23 April           Catch-up & Review  30*-33*, 38*, 40*
W, 24 April           Make-up Exam Day- Time/place to be announced
Th, 25 April          Final Exam Week begins
T, 30 April           Final Exam, 150 pts; 1:15-3:15 PM  30*-33*, 38*, 40*

*Denotes only part of Chapter will be covered (see Instructor outlines for details).
Important Dates: Tuesday, 8 Jan., classes begin; Thursday, 10 Jan. (1st day iClickers might be used for in-class assessments); Friday, 11 Jan. (last day to drop/add courses without fee consequences); Thursday, 17 Jan. (Exam #1); Friday, 1 March (last day to drop/withdraw without a WF); T, 23 April (last office hrs and last class of semester); W, 2 April (Make-up Exams); Final Exam (T, 30 April, GN 101-Note Different Time Than Regular Class Meetings- 1:15-3:15 PM); M, 6 May, 9:00 AM (Grades due).

Learning Objectives for Course (by Exam):

Exam 1 Learning Objectives: For Exam 1, you'll be able to do the following: 1) Identify different microscopy types, stains, etc., esp. the Gram stain, and be able to discuss them and distinguish between them; 2) Identify different bacterial structures, inclusions & characteristics, esp. the cell wall, and discuss them and distinguish between them; 3) Identify different eucaryotic cell organelles, their functions and discuss/distinguish between them; 4) Identify different bacteria nutrient types, how cells acquire them, different media types and bacterial growth characteristics, esp. growth curves & environmental factors affecting growth and discuss/distinguish between them; 5) Compare and contrast any of the above

Exam Two Learning Objectives: By Exam 2, students should be able to: 1) compare/contrast physical and chemical methods used to control microbes; 2) discuss enzyme structure, function, kinetics & regulation; 3) describe the 1st & 2nd laws of thermodynamics; 4) compare & contrast cellular reactions (rxns.) and work; 5) discuss cellular metabolism and compare/contrast anabolism and catabolism; 6) discuss important catabolic pathways, including glycolysis, the pentose PO4 pathway, the Entner-Doudoroff pathway, the TCA cycle, e transport and fermentations; 7) know about important anabolic pathways, especially photosynthesis, including both the dark and light reactions (esp. the Calvin cycle); and 8) know the importance of protonmotive force (PMF)/e transport in cell rxns. of all types. They’ll learn these things by 1) reading the book in advance and paying attention to information given in class; 2) making hypotheses and answering questions during group discussions in class; 3) multiple formative and summative quizzes; and 4) adjusting their hypotheses and concepts as a result of group discussions and quizzes.

Exam Three Learning Objectives: By Exam 3, students will learn about basic molecular biology of cells, focusing on bacteria. Specifically, in Chapter 12, they’ll learn the basic structure and composition of DNA, the experiments leading to the recognition DNA was the hereditary molecule, the ways DNA replicates & the enzymes/proteins involved, the structural organization of genes, different RNA types & their cell functions, different RNA POLs & their functions, and how transcription and translation are carried out in cells. In Chpt. 13, gene regulation (esp. involving operons) is featured. In Chpt. 14, mutations, their detection and genetic recombination are covered and in Chpt. 15, Genetic Engineering/Biotechnology is introduced. Genomics, including its methods, are discussed in Chpt. 16.
At the end of this section, students will be able to accurately describe in detail and discuss all of the above topics. They’ll also be able to compare and contrast any related topics (viz. replication vs. transcription and/or translation, inducible vs. repressible operons, silent vs. conditional mutations, transduction vs. conjugation, generalized vs. specialized transduction, Southern Blots vs. Western Blots, etc.).

**Exam Four Learning Objectives:**
For this exam, students will have to learn about viruses: a little history, their great diversity of types, genomes, replication strategies, etc. and their counting methods, isolation and cultivation in the lab. They'll also learn about bacterial taxonomy and its different methods and utility, about the extremophiles comprising the Archaea and their significance and about selected aspects of the enormous diversity of Eubacteria, mainly Gram negative proteobacteria and non-proteobacteria. An overriding theme is the biodiversity of different microbes/other infectious agents and their adaptation to diverse environments.

**Final Exam Learning Objectives:**
This is the Medical Microbiology section, with Food & Beverage Microbiology thrown in for good measure. By the end of this section, you should have a basic knowledge about the following areas: 1) Food and Beverage Microbiology (including which foods/beverages are microbial products, the way they’re made and the microorganisms involved in making them) and food-borne illnesses (including toxins made by microbes that contaminate foods such as aflatoxins); 2) Microbial Interactions, including the 3 different types of symbiotic relationships and distinguish them, with a special emphasis on Parasites and Parasitism; 3) The types of blood cells in people, their functions, the Complement cascades and Inflammation; 4) an Overview of Specific Immunity; 5) Elements of Bacterial Pathogenesis; 6) The terminology, definitions and a basic understanding of Epidemiology and 7) Selected Bacterial Diseases (airborne pathogens, one direct-contact pathogen and food/water-borne illnesses and appropriate prevention and treatment, if any is indicated).