

# FLORIDA ATLANTIC UNIVERSITY™

## Undergraduate Programs—COURSE CHANGE REQUEST<sup>1</sup>

UUPC APPROVAL \_\_\_\_\_  
 UFS APPROVAL \_\_\_\_\_  
 SCNS SUBMITTAL \_\_\_\_\_  
 CONFIRMED \_\_\_\_\_  
 BANNER POSTED \_\_\_\_\_  
 CATALOG \_\_\_\_\_

DEPARTMENT: BIOLOGICAL SCIENCE	COLLEGE: COLLEGE OF SCIENCE
COURSE PREFIX AND NUMBER: MCB 3020	CURRENT COURSE TITLE: GENERAL MICROBIOLOGY
CHANGE(S) ARE TO BE EFFECTIVE (LIST TERM): FALL 2013	TERMINATE COURSE (LIST FINAL ACTIVE TERM):
CHANGE TITLE TO:	CHANGE DESCRIPTION TO:
CHANGE PREFIX FROM: TO:	CHANGE PREREQUISITES/MINIMUM GRADES TO*:
CHANGE COURSE NO. FROM: TO:	<u>EXISTING</u> BSC 1010,BSC 1010L, BSC 1011, BSC 1011L, CHM 2045, CHM 2045L, CHM 2046,CHM 2046L,RECOMMENDED: ORGANIC CHEMISTRY,
CHANGE CREDITS <sup>2</sup> FROM: TO:	<u>NEW PRE/REQ.</u> BSC 1010,BSC 1010L, BSC 1011, BSC 1011L, CHM 2045, CHM 2045L, CHM2046,CHM2046L
CHANGE GRADING FROM: TO:	<u>MINIMUM PASSING GRADE C-</u>
CHANGE WAC/GORDON RULE STATUS <sup>3</sup> ADD* _____ REMOVE _____	<u>EXISTING COREQUISITES: MCB 3020</u>
CHANGE GENERAL EDUCATION REQUIREMENTS <sup>4</sup> ADD* _____ REMOVE _____	CHANGE COREQUISITES TO*: <u>NONE</u>
*WAC and General Education criteria must be clearly indicated in attached syllabus. For WAC Guidelines: <a href="http://www.fau.edu/WAC">www.fau.edu/WAC</a> . Please attach General Education Course Approval Request: <a href="http://www.fau.edu/deanugstudies/GeneralEdCourseApprovalRequests.php">www.fau.edu/deanugstudies/GeneralEdCourseApprovalRequests.php</a>	
#Please list aviation and non-aviation specific AND or OD and 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. <sup>5</sup>

Faculty contact, email and complete phone number: David Binninger; <a href="mailto:binninge@fau.edu">binninge@fau.edu</a> ; 561.297.3323
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Approved by:	Date:	1. Syllabus must be attached; syllabus checklist recommended; see guidelines and checklist: <a href="http://www.fau.edu/academic/registrar/UUPCInfo">www.fau.edu/academic/registrar/UUPCInfo</a>
Department Chair: <u>Mark Binninger</u>	Mar. 14, 2013	2. Review Provost Memorandum: Definition of a Credit Hour <a href="http://www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf">www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf</a>
College Curriculum Chair: <u>J T My</u>	3/20/13	3. WAC approval (attach if necessary)
College Dean: <u>D. John</u>	3/20/13	4. Gen. Ed. approval (attach if necessary)
UUPC Chair: <u>J C My</u>	3/22/13	5. Consent from affected departments (attach if necessary)
Undergraduate Studies Dean: <u>E. Elizabeth</u>	3/27/13	
UFS President:		
Provost:		

Email this form and syllabus to [mjenning@fau.edu](mailto:mjenning@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.

**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, 8<sup>th</sup> Ed.* (several ISBNs) is the text; you **must** have this or the 7<sup>th</sup> 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](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-=57.5-59.4; 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 multi-ple choice or True/False; all are **worth 2 pts @ (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 1<sup>st</sup> 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** introduce topics, assess

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](mailto: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:**

<b>Day</b>	<b>Topic(s)</b>	<b>Homework- Reading Assignments: Chpt(s)</b>
T, 8 Jan.	Microscopy, Procaryot. Cell Strctr./Fxn.	2*-3*
Th, 10 Jan.	Procaryot./Eucaryot. Cell Strctr./Fxn.	3*-4*
T, 15 Jan.	Microbial Nutrition & Growth	6*-7*
<b>Th, 17 Jan</b>	<b>Exam #1, 100 pts.</b>	<b>2*-4, 6-7*</b>
T, 22 Jan.	Microbial Control & Killing	8
Th, 24 Jan.	Microbial Metabolism: Energy & Enzymes	9
T, 29 Jan.	Metabolism: Catabolism	10
Th, 31 Jan.	Metabolism: Biosynthesis	11
<b>T, 5 Feb.</b>	<b>Exam #2, 100 pts.</b>	<b>8-11</b>
Th, 7 Feb.	Genes: DNA structure, replication	12*
T, 12 Feb.	Gene expression, regulation	13*
Th, 14 Feb.	Mutation/repair, genetic recombination	14*
T, 19 Feb.	Recombinant DNA technology	15*
Th, 21 Feb.	Genomics	16*

T, 26 Feb.	<b>Exam #3, 100 pts.</b>	<b>12*-16*</b>
Th, 28 Feb.	Viruses	5, 25*
<b>F, 1 March</b>	<b>Last day to withdraw without a WF on transcript</b>	
<b>M-Sunday, 4-10 March      No classes-Spring break!</b>		
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*
<b>Th, 21 March</b>	<b>Exam #4, 100 pts.</b>	
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*
<b>T, 23 April</b>	<b>Office Hours End at 1 PM</b>	
T, 23 April	Catch-up & Review	30*-33*, 38*, 40*
<b>W, 24 April</b>	<b>Make-up Exam Day- Time/place to be announced</b>	
<b>Th, 25 April</b>	<b>Final Exam Week begins</b>	
<b>T, 30 April</b>	<b>Final Exam, 150 pts; <u>1:15-3:15 PM</u></b>	<b>30*-33*, 38*, 40*</b>

\*Denotes only part of Chapter will be covered (see Instructor outlines for details).

**Important Dates:** Tuesday, 8 Jan., classes begin; Thursday, 10 Jan. (*1<sup>st</sup> 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, 24 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 1<sup>st</sup> & 2<sup>nd</sup> 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 PO<sub>4</sub> pathway, the Entner-Doudoroff pathway, the TCA cycle, e<sup>-</sup> 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<sup>-</sup> 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).