



SAINT LOUIS UNIVERSITY  
MADRID

**BLS2100: Microbiology**  
Fall 2017

**Class Days and Time:** MW, 2:30- 3:45 PM

**Classroom:** PRH-4

**Prerequisite(s):** none

**Credit(s):** 3

**Instructor:** Francisco Amaro, Ph.D.

**Instructor's Email:** [francisco.amaro@slu.edu](mailto:francisco.amaro@slu.edu)

**Instructor's Campus Phone:** 91 554 58 58, ext. 232

**Office:** PAH-206

**Office Hours:** MW, 5:15-6:30 PM, or by appointment

**Course Description:**

Microbiology is an exciting discipline with far-reaching impacts in human health and disease. This course will focus on the study of microorganisms (bacteria, viruses, fungi, and protists) and their relationships with human disease. During the first half of the course we will cover the basic principles of Microbiology including microbial structure, growth, metabolism, genetics and general concepts of microbial pathogenesis. In the second half of the course we will draw on the basic principles learned in the first half of the semester to understand Microbiology as it relates to human health and human disease. By understanding the fundamental principles of Microbiology, health care professionals can help manage the problems caused by microorganisms. This course will also cover special topics: emerging infectious diseases and global public health, nosocomial infections, biofilms and chronic infections, and antibiotic resistance.

The Laboratory section will focus on basic microbiological techniques relating to isolating, handling, growing, and identifying microorganisms.

**Course Goals and Student Learning Outcomes:** At the end of the course, students will:

- Acquire a solid grasp of the scope of the microbial world and how microorganisms impact our society and human health.
- Acquire specialized knowledge and language for a better understanding of microbial pathogenesis and means of control and treatment microbial infections.
- Understand how to control bacterial growth, microbial transmission and how to provide a microbe-free environment for the health professional
- Acquire basic microbiological laboratory skills and learn safety guidelines and regulations.
- Learn how to communicate laboratory results to others, and use appropriate language and information to explain laboratory tests and results to both colleagues and patients.
- Learn what measures can be taken to reduce public health risks associated with infectious diseases and bacterial antibiotic resistance.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs is kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. *Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be*

kept on file for institutional research, assessment and accreditation purposes. If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.

#### **Required Texts and Materials:**

- **Course textbook: Microbiology: A Clinical Approach, by Strelkauskas *et al.*, 2015. Garland Science.** 2<sup>nd</sup> Edition (**highly recommended**, available at the SLU-Madrid Library and SLU-Madrid Bookstore):
- Additional recommended textbooks (**\*Older editions are available at the SLU-Madrid Library**):
  - Microbiology with Diseases by Body System, by Bauman, 2015. Pearson. 4<sup>th</sup> Edition (\*)
  - Microbe, by Swanson *et al.* 2016. ASM Press. 2<sup>nd</sup> Edition.
  - Microbiology: An Introduction, by Tortora *et al.*, 2012. Pearson. 11<sup>th</sup> Edition (\*)
  - Brock's Biology of Microorganisms, by Madigan *et al.*, 2012. Pearson. 14<sup>th</sup> Edition.
- **The BLS-2100 Laboratory Manual (required for lab)** is available at the SLU-Madrid Bookstore.

#### **Attendance Policy:**

Students are expected to attend all classes unless a reasonable excuse is given. Most students in the past have found the lectures to be helpful. If you absolutely must miss a class, it is your responsibility to get all information and material covered from your fellow students.

**Attendance to the laboratory sessions is MANDATORY.**

#### **Course Requirements and Grading Rationale/System:**

#### **EVALUATION OUTCOME**

The final grade for the class is calculated as follows:

- |                          |     |
|--------------------------|-----|
| • Midterm 1:             | 16% |
| • Midterm 2:             | 16% |
| • Final Exam:            | 23% |
| • Laboratory:            | 20% |
| • Quizzes & Assignments: | 20% |
| • Final Project:         | 5%  |

There could be quizzes (dates will be indicated by your instructor in advance).

#### **GRADING SCALE:**

A:	93-100%
A-:	90-92.9%
B+:	87-89.9%
B:	83-86.9%
B-:	80-82.9%
C+:	77-79.9%
C:	73-76.9%
C-:	70-73.9%
D:	60-69.9%
F:	00-59.9%

## EXAMS

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There will be a total of 3 EXAMS:

- **Midterm 1:** Wednesday, October 11 (2:30 – 3:45 PM). Room: PRH-4
- **Midterm 2:** Monday, November 13 (2:30 – 3:45 PM). Room: PRH-4
- **Final Exam:** Thursday, December 14 (3:30 – 6:30 PM). Room: PRH-4

The exams will have the following general structure:

- Multiple choice questions: 50%
- Short answer questions/ Short essay/ Case study: 50%

**The exams are NOT cumulative.** However, there is also a comprehensive final exam that examines ALL of the course material. This exam is mandatory ONLY for students who failed or missed either midterm exam.

**Make up exams are not given.** Students who legitimately miss an exam, due to a doctor or family emergency must provide written documentation of the circumstances. A letter from the university counselor is accepted. Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams. Missing more than one exam results in an F.

Exam questions may come from material covered in lecture, class discussions, assigned textbook readings and from any supplementary reading material provided.

All lecture slides will be posted on Blackboard, as well as announcements, supplementary material and readings. Blackboard should be checked at a regular basis.

We will cover most of the assigned material during lecture; however, you will be required to have general knowledge of the assigned reading material, even if not specifically covered during the lectures.

## HOMEWORK AND FINAL PROJECT

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Regular homework assignments will be given. Questions and case studies outside of class are expected to be a measurement tool for you to chart your progress in this course and to identify your deficiencies. Homework will count towards your final grade. **Late homework will not be accepted and will result in a grade of zero for that assignment.** If you are going to miss school on the day the homework is due, please turn your homework in early or email it to me ([francisco.amaro@slu.edu](mailto:francisco.amaro@slu.edu)).

**FINAL PROJECT: STUDENT PRESENTATIONS-** All students are invited to prepare an **oral presentation** (format: power point presentation). Topics will be provided by your instructor in class. This project will count for 5% of your final grade. An abstract describing your presentation must be submitted via SLU BlackBoard before December 1<sup>st</sup>. Template and guidelines will be provided by your instructor. A copy of your slides/presentation (.pdf file) must be emailed to your instructor after your presentation.

## LABORATORY

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There will be six lab sessions (**look at the dates below**). Attendance to the lab is **MANDATORY**. The laboratory will count for 20% of your final grade. This grade will be determined by attendance, satisfactory performance on the laboratory exercises, completion of the laboratory report, laboratory pre-lab questions and proper and complete cleanup of the laboratory space. **Lab Grade is calculated as follows:**

- Laboratory pre-lab questions: 25%
- Laboratory written reports: 65%
- Attitude, laboratory work, cleanup: 10%

## COURSE OUTLINE

Day	Date	Topic / Lecture	Textbook reading
Mon	Sep-04	0. Course Overview 1. What is Microbiology and Why does it Matter?	Chapter 1
Wed	Sep-06	2. The Eukaryotic Cell: Human Cells and Eukaryotic Microorganisms	Chapter 4 (pp.59 - 69)
Mon	Sep-11	3. The Prokaryotic Cell: Bacteria	Ch. 4 (pp.48-58) & Ch. 9
Wed	Sep-13	4. Microbial Metabolism and Bacterial Growth	Chapters 3 & 10
Mon	Sep-18	5. Bacterial Genetics I	Chapter 11
Wed	Sep-20	6. Bacterial Genetics II	Chapter 11
<b>Mon</b>	<b>Sep-25</b>	<b>Lab 1 / Day 1 - Microbes in the environment &amp; Obtaining Pure Cultures</b>	
<b>Wed</b>	<b>Sep-27</b>	<b>Lab 1 / Day 2 - Microbes in the environment &amp; Obtaining Pure Cultures</b>	
Mon	Oct-02	7. Control of Microbial Growth in the Environment: Disinfectants & Antiseptics	Chapter 18
Wed	Oct-04	8. Control of Microbial Growth in the Human Body: Antibiotics	Chapters 19 & 20
Mon	Oct-09	9. Microbial Pathogenesis: How Microorganisms Cause Disease	Ch. 4 (pp.56-57) & Ch. 5
<b>Wed</b>	<b>Oct-11</b>	<b>MIDTERM 1 (Lectures 1-8)</b>	
Mon	Oct-16	10. Development and Transmission of Infectious Diseases	Chapters 6 & 7
Wed	Oct-18	11. Host Defenses I: The Innate Immune Response	Chapter 15
<b>Mon</b>	<b>Oct-23</b>	<b>Lab 2 / Day 1 - Microbial Transmission and Control of Microbial Growth</b>	
<b>Wed</b>	<b>Oct-25</b>	<b>Lab 2 / Day 2 - Microbial Transmission and Control of Microbial Growth</b>	
Mon	Oct-30	12. Host Defenses II: The Adaptive Immune Response	Chapter 16
Wed	Nov-01	NO CLASSES - UNIVERSITY CLOSED	
Mon	Nov-06	13. Viruses and Viral Pathogenesis	Chapters 12 & 13
Wed	Nov-08	14. Infections of the CNS	Chapter 24
<b>Mon</b>	<b>Nov-13</b>	<b>MIDTEMR 2 (Lectures 9-13)</b>	
Wed	Nov-15	15. Infections of the Respiratory System	Chapter 21
Mon	Nov-20	16. Infections of the Digestive System	Chapter 22
Wed	Nov-22	17. Infections of the Genitourinary Tract	Chapter 23
<b>Mon</b>	<b>Nov-27</b>	<b>Lab 3 / Day 1 - Collection, Handling and Identification of Microorganisms</b>	
<b>Wed</b>	<b>Nov-29</b>	<b>Lab 3 / Day 2 - Collection, Handling and Identification of Microorganisms</b>	
Mon	Dec-04	18. Infections of the Blood	Chapter 25
Wed	Dec-06	NO CLASSES - UNIVERSITY CLOSED	
Mon	Dec-11	19. Infections of the Skin and Eyes	Chapter 26
Wed	Dec-13	FINAL PROJECT – STUDENT PRESENTATIONS	
<b>Thu</b>	<b>Dec-14</b>	<b>FINAL EXAM - (15:30 - 18:30)</b>	

**E-mail:** Campus and course announcements will often be handled by e-mail. Students should check their "@slu.edu" e-mail regularly.

**University Statement on Academic Integrity:** Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office [website](#) at: Additionally, SLU-Madrid has posted its academic integrity policy online: <http://www.slu.edu/madrid/academics>. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

**University Title IX Statement:** Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (mmaruri@slu.edu; 915-54-5858, ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiplettherapy Institute, the off-campus provider of counseling services for SLU-Madrid ([www.sinews.es](http://www.sinews.es); 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: <http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf>.

**Students with Special Needs:** In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to <https://www.slu.edu/madrid/academics/student-resources>

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also must notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at [disabilityservices-madrid@slu.edu](mailto:disabilityservices-madrid@slu.edu) or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

**(IF APPLICABLE): Mandatory Trips/Activities:** Students enrolled in this class must participate and make payment for all mandatory trips/activities. The prices posted on the web are approximate; and the final price will be based on the number of students enrolled on the last day of the Add/Drop period. All students, including those who

withdraw from the class after this date, are required to pay these fees, which are non-refundable, unless the trip is cancelled due to low enrollment. Please review SLU-Madrid's trip policies, available on-line.

**Fall 2017 Course Schedule:**

Monday, September 4	Fall 2017 first day of classes
Sunday, September 17	Last Day to Drop a Class Without a Grade of W and /or Add a Class, choose Audit (AU) or Satisfactory/Unsatisfactory (S/U) Options
Thursday, October 12	Fall Break
Friday, October 13	
Saturday, October 14	
Sunday, October 15	
Thursday, October 19	
Monday, October 30	Midterm Grades Due.
Monday, October 30	Last Day to Drop a Class and Receive the Grade of W.
Wednesday, November 1	University Closed
Thursday, November 2	Spring Registration Opens!
Thursday, November 9	University Closed
Wednesday, December 6	University Closed
Friday, December 8	University Closed
Thursday, December 14	Final Exam – Day 1
Friday, December 15	Final Exam – Day 2
Monday, December 18	Final Exam – Day 3 Midyear Commencement!
Tuesday, December 19	Final Exam – Day 4
Wednesday, December 20	Final Exam – Day 5
Saturday, December 23	Grades Due to Registrar

FALL 2017 FINAL EXAM SCHEDULE

	14 Dec (Th)	15 Dec (Fr)	18 Dec (Mn)	19 Dec (Tu)	20 Dec (Wd)
<b>08:30-11:30</b>	Mn classes that meet at 9:00 & 9:30	Mn classes that meet at 10:00	Mn classes that meet at 11:00 & 11:30	Tu classes that meet at 9:30 & 10:00	Tu classes that meet at 8:00
<b>12:00-15:00</b>	Tu classes that meet at 11:00	Mn classes that meet at 13:00	Tu classes that meet at 14:30	Mn classes that meet at 12:00	Tu classes that meet at 12:30
<b>15:30-18:30</b>	Mn classes that meet at 14:30	Tu classes that meet at 17:00 & 17:30	Mn classes that meet at 16:00	Tu classes that meet at 15:30 & 16:00	Mn classes that meet at 17:30
<b>19:00-22:00</b>	---	---	Mn classes that meet at 19:00	Tu classes that meet at 19:00	---