MICROBIOLOGY FOR NON-SCIENCE MAJORS

BIOL 3420 (Lecture)

Course description

This course is primarily designed to provide pre-nursing and related health career students with a fundamental understanding of introductory medical microbiology with a focus on those microorganisms that cause disease. The first-half of this course is designed to be introductory in nature and will cover broad concepts in microbiology including bacteria, protists, parasites, viruses, and fungi. The second-half of the course is more specific and will cover immunology and specific microbial diseases by body system. There will of necessity be some memorization but only enough to allow you to apply facts to building concepts and a well-rounded understanding of this rapidly advancing field of science.

Basic information about course

Professor: Dr. Željko Radulović
Instruction type: Online
Corequisite: BIOL 3020 (Microbiology for Non-Science Majors Lab)
About your professor

Office: E. L. Miller Science Building, room 202
Phone: 936-468-6619
E-mail: Zeljko.Radulovic@sfasu.edu
Office hours: Mondays, 12.00 pm – 1.00 pm
Tuesdays, 1.00 pm – 4.00 pm
Wednesdays, 12.00 pm – 1.00 pm

Short biography:
I completed my BS, MSc, and PhD in Biology at University of Belgrade in Serbia. Professional career I started at Institute for Medical Research in Belgrade, where I studied arthropod vectors and pathogenic microorganisms they transmit. After graduation with PhD, I moved to United States and spent six years as a postdoc at Texas A&M University working on molecular mechanisms of tick feeding and pathogen transmission. In 2017 I became an assistant professor at Northwestern State University, where I stayed for three years teaching courses in the field of microbiology, genetics, and molecular biology. Starting from the fall semester of 2020, I am assistant professor in Department of Biology at Stephen F. Austin State University.

Research interest:
Focus of my research program is on arthropod vectors and vector-borne microorganisms. Current research projects are related to ticks and include molecular detection of pathogenic microorganisms in locally collected tick specimens using PCR-based methods, isolation and characterization of tick-borne microorganisms, as well as determination of genetic structure of different tick populations.

Other interests:
I enjoy fishing, gardening, and playing tennis, basketball or soccer. Also, I am a big fun of „Crvena Zvezda“ (Red Star Sports Society located in Belgrade, Serbia), and use every opportunity to attend games of Red Star soccer and basketball teams. Choreographies and noise made by Red Star supporters, make the atmosphere in these games to be ranked among the best worldwide. Living far from Serbia right now, I still enjoy watching these games on TV.
### Course calendar

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 23rd - Aug 30th</td>
<td>Introduction to medical microbiology</td>
</tr>
<tr>
<td>2</td>
<td>Aug 30th - Sep 6th</td>
<td>Prokaryotic microorganisms</td>
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<tr>
<td>3</td>
<td>Sep 6th - Sep 13th</td>
<td>Eukaryotic microorganisms</td>
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<tr>
<td>4</td>
<td>Sep 13th - Sep 20th</td>
<td>Viruses</td>
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<tr>
<td>5</td>
<td>Sep 20th - Sep 27th</td>
<td>Microbial nutrition, ecology, and growth</td>
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<tr>
<td>6</td>
<td>Sep 27th - Oct 4th</td>
<td>Microbial metabolism</td>
</tr>
<tr>
<td>7</td>
<td>Oct 4th - Oct 11th</td>
<td>Microbial genetics and genetic engineering</td>
</tr>
<tr>
<td>8</td>
<td>Oct 11th - Oct 15th</td>
<td><strong>Test 1</strong></td>
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<tr>
<td>9</td>
<td>Oct 18th - Oct 25th</td>
<td>Physical and chemical control of microorganisms</td>
</tr>
<tr>
<td>10</td>
<td>Oct 25th - Nov 1st</td>
<td>Pathogenic microbiology</td>
</tr>
<tr>
<td>11</td>
<td>Nov 1st - Nov 8th</td>
<td>Host defense mechanisms</td>
</tr>
<tr>
<td>12</td>
<td>Nov 8th - Nov 15th</td>
<td>Diagnosing infections</td>
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<tr>
<td>13</td>
<td>Nov 15th - Nov 22nd</td>
<td>Antimicrobial treatment, resistance, and toxicity</td>
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<tr>
<td>14</td>
<td>Nov 19th - Dec 1st</td>
<td><strong>Test 2</strong></td>
</tr>
<tr>
<td>15</td>
<td>Nov 29th - Dec 6th</td>
<td>Selected infectious diseases</td>
</tr>
<tr>
<td>16</td>
<td>Dec 6th - Dec 10th</td>
<td><strong>FINAL EXAMINATION</strong></td>
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**NOTE:** Slight variations from the proposed calendar are possible during the course.
Materials

Material for lectures in this course will be posted in D2L weekly, according to the provided schedule. Material will be posted on the first day indicated in the schedule and will stay open the whole semester. Textbook IS NOT required for this course. However, if you prefer to have a textbook, the recommended one is:


Course goal and student learning outcomes

This course will provide students with basic knowledge about different groups of microorganisms, with focus on pathogenic microbiology, prevention and treatment of infectious diseases. The main goal is that students understand processes that lead to transmission and development of infectious diseases. Students who successfully complete this course should be able to:

- Explain the most important characteristics of different groups of microorganisms;
- Describe nutritional and environmental requirements for growth of microbes;
- Describe differences in main metabolic pathways between prokaryotic and eukaryotic microbes;
- Explain how pathogenic microorganisms cause diseases in humans;
- Describe ways of transmission of pathogenic microorganisms;
- Explain interactions between pathogenic microorganisms and the human immune system;
- Interpret different methods used in diagnosis of infectious diseases;
- Explain common methods used in the control of microorganisms;
- List the most important human infectious diseases and their characteristics.
Grading policy

During this course students will be assessed by:

- 12 quizzes – Each weekly lecture will include an online quiz (12x15 = 180 points);
- 2 proctored tests according to schedule – 2x110 = 220 points;
- 1 student project – 1x100 points = 100 points;
- 1 proctored comprehensive final exam – 1x200 points;
- Microbiology lab grade – 1x300 points = 300 points.

NOTE: Bonus assignments will be included in majority of lectures.

Quiz and test make-up policy
Students are allowed to miss one quiz and one test without providing an excuse, while for every additional missed assessment an university approved excuse need to be provided. For missed quizzes, the grade from related test will be applied. Make-up test will be allowed in the form of an oral exam.

Late assignment submission policy
Since feedbacks for lecture assignments will be provided immediately, late submissions will not be accepted. On the other side, late submissions for student project assignments will be accepted with penalties, according to the rubric provided with the assignment.

Grading scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>900+ points</td>
<td>90-100 %</td>
</tr>
<tr>
<td>B</td>
<td>800-899.99</td>
<td>80-89.99 %</td>
</tr>
<tr>
<td>C</td>
<td>700-799.99</td>
<td>70-79.99 %</td>
</tr>
<tr>
<td>D</td>
<td>600-699.99</td>
<td>60-69.99 %</td>
</tr>
<tr>
<td>F</td>
<td>0-599.99</td>
<td>0-59.99 %</td>
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</tbody>
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NOTE: Students that miss 5 or less points (<0.5%) to the upper letter grade at the end of course, will have an opportunity to improve their final grade. First, they need to contact me in a short period of time between the moment I post all grades in the Brightspace and the deadline for the final grades submission. The second, these students will take a short oral exam as an opportunity to improve their final grade.
**Supplemental instruction**

Academic Assistance and Resource Center (AARC) provide option for supplemental instruction for this course:

**Tutor:** Sylvia Schepps  
**E-mail:** scheppssm@jacks.sfasu.edu  
**Meeting times:** Mondays and Wednesdays, 5.00 pm – 6.00 pm  
**Location:** Library Wyatt room

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**Course credit hour justification**

This is a 3 credit hours course (without the lab component), which means that students will need around 150 minutes of direct interaction with posted material per week. This includes reading material, video material, and weekly assessments. In addition, around 4 hours per week of indirect activities is expected from students in order to successfully accomplish all course requirements. This includes review of literature or class material, work on bonus assignments, work on student project, etc.

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**COVID-19 recommendations**

Application of all recommendations related to control of COVID-19 pandemic issued by CDC, including vaccination, physical distancing, wearing of face coverings, and hand washing, is strongly encouraged, but not required.
SFA policies

Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. To receive a WH, the student must have completed a majority of the course. If a WH is given, students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468- 1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.