

# SYLLABUS

## Microbiology Laboratory (MCB2010L, Section 807340)

*“The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy”*

—Dr. Martin Luther King, Jr

**Term:** Fall 2014-1

**Class location:** Room 1663

**Class Meeting time:** Tuesdays, 5:40PM – 9:00PM

**Professor:** Dr. Félix E. Rivera-Mariani

Office: Room 1663

Office Hours: Tuesday: 3:00PM – 5:00PM or by appointment

Thursday: 3:00PM – 5:00PM or by appointment

**Email:** [friveram@mdc.edu](mailto:friveram@mdc.edu)

**Phone:** 800-319-4380

**Required Textbook:** Leboffe, M.J. and B. E. Pierce. 2010. Microbiology Laboratory Theory & Applications. 3<sup>rd</sup> Ed. Morton Publishing Company, Inc. Englewood, CO. (ISBN 978-0-86582-830-9).

**e-book:** [http://www.coursesmart.com/IR/7362944/9780895828309?\\_hdv=6.8](http://www.coursesmart.com/IR/7362944/9780895828309?_hdv=6.8)

**Co-requisite:** Microbiology (MCB2010)

### **I. Rationale of the course**

To provide a hands-on learning experience of the different approaches used in the laboratory to study and identify microorganisms based on their morphological (i.e. size, appearance) and physiological properties.

### **II. Course Goals**

- To understand and evaluate physicochemical properties that make water essential to life
- To understand, evaluate, and differentiate the structures, functions, and metabolism of:
  - Carbohydrates
  - Nucleic acids
  - Amino acids, proteins, and enzymes
  - Lipids
- To understand and evaluate the Electron Transport Chain and Photosynthesis
- To understand, evaluate, and synthesize into:
  - DNA replication, repair, and recombination
  - Transcription and RNA processing
  - Translation

### III. Course Materials

Course materials, including syllabus, complete lectures, assignment instructions, and supplemental materials, will be available at the following websites:

- Miami-Dade Blackboard website:  
<https://mdc.blackboard.com>
- Book publisher's website  
[http://www.coursesmart.com/IR/7362944/9780895828309?\\_hdv=6.8](http://www.coursesmart.com/IR/7362944/9780895828309?_hdv=6.8)

### IV. Methods of Instructions

**Lectures** that will assist students understand and apply the different Biochemical macromolecules and processes, and real-life examples and scenarios in which Biochemistry is employed.

**Discussions** of topics, real-life examples and scenarios in which Biochemistry is employed will allow students to apply different levels of learning (understand, application, synthesis, creativity).

**Exercises** in-class and on-line, as reading assignments and homework will supplement and assess students' knowledge and learned skills of Biochemistry.

**Case Studies** will provide real-life and scientific Biochemistry scenarios that will allow students to apply, synthesize and create with your knowledge.

**Reading assignments** will aid your understanding, application, and synthesis of the topics learned in-class by answering critical thinking questions found at the end of each chapter.

**Writing assignment** to improve your communication skills in Biological Sciences and in future courses. In addition, you will learn to think thoroughly (before and after) your writing.

### V. Technological Methods of Instructions

**Flipped classrooms**, in which digital formats of lectures and course materials will be made available to the students online prior to meeting in class, will occasionally be used to facilitate the discussion (e.g. problem-based, case studies) in the classroom.

**Student Response Systems**, also known as "classroom clickers," will be used to further contribute to the engagement and team-based learning in the classroom. From a smartphone app, students will be able to remotely answer questions presented by the professor. **This will be the only instance in which cellphones/smartphones will be allowed in the classrooms.**

### VI. Academic Integrity

Each student is expected to maintain a high level of integrity and abide by the procedure 4070 of the Miami-Dade College Student Rights and Responsibility Handbook. Any work submitted by a student in this course for academic credit will be the student's own work. For the purpose of this course, collaboration is allowed in the following instances: in-class group work, case studies discussions, or when stated by the professor. Nevertheless, each student must submit their individual work unless stated otherwise by the instructor.

As part of a collaborative and encouraging classroom, you are encouraged to study together and to discuss topics and concepts covered in class with other students. You can obtain "consulting" help from students as well as provide "consulting" help to other students. However, this allowed

form of cooperation should never involve one student having possession of a copy of all or part of the work done by another student or someone else, in the form digital files or hard copy documents.

In the case that copying occur, both the student who copied work from another student and the student who contributed to this behavior will both automatically receive a zero for the corresponding assignment. Penalty for violation of this Code can include failure of the course and/or notifying the corresponding University authorities for disciplinary action.

During exams (i.e. quizzes and exams), you must do your own work. Talking or discussion is not allowed during the examinations. In addition, you cannot compare papers, copy from others, or collaborate in any way. Any form of the behaviors mentioned above will result in failure of the exam and can include notifying the corresponding University authorities for disciplinary action. **Cell phones cannot leave the classroom during exams or quizzes, and must be turned off during class.**

Any form of Academic Dishonesty listed in the Miami-Dade College Student Rights and Responsibility Handbook will not be accepted during in the course.

### **Attendance**

Attendance to each class sessions is essential for your learning. Biochemistry is known for its hard topics that often require integration of topics discussed in previous class sessions. In addition, **attendance will count 20 points of your final grade.** For each unexcused absence, **1 point will be deducted; for each unexcused tardiness, 0.5 point will be deducted.** It is the instructor's decision if the student is allowed to make up missed work. In the event of an absence, the student will be allowed to make up work if the absence results from one of the following:

- Official campus activities (as designated by MDC)
- Family or personal emergencies (as designated by MDC)
- Medical reasons (discussed with the instructor)
- Work-related reasons (discuss with the instructor)

If absent during an exam, the student must make up the exam within 24hrs of the corresponding exam date except for any unusual circumstances (in accordance with MDC guidelines). **There is no make-up for quizzes.**

### **Late policy**

Unless arrangement have been made prior to the due date or have a valid absence excuse (as stated in the Attendance section of this syllabus), half the grade or the corresponding points (e.g. writing assignment) will be deducted from the late assignment.

### **Accommodations for students with disabilities**

In compliance with the Miami-Dade College and the Student Rights and Responsibility Handbook policy and equal access laws, I more than available to discuss any necessary academic accommodations that may be required for the student with disabilities. Requests for academic accommodations are to be made during the first week of the term, except for unusual circumstances, so arrangements can be made. Students are encouraged to contact the Student Services to verify their eligibility for appropriate accommodations.

### **Inclusivity Statement**

Members (student, faculty, administrators) of the Miami-Dade College community represent a diversity of backgrounds and perspectives. In this course, and as a member of this community, I am a strong supporter of diversity and its benefits. Therefore, to maintain an adequate learning and diverse environment students in this course are strongly encouraged to:

- share their unique beliefs, experiences, and values
- be open to the opinions and views of others
- honor your colleagues' uniqueness
- appreciate the unique opportunity we have to learn from each other
- value each other's opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- take advantage of this opportunity to share ways in which an inclusive environment can be create in this course and across the Miami-Dade College community

### **Grading Scales:**

<b>Item</b>	<b>Points</b>
Reading assignments (weekly)	70
Writing assignment	80
Quizzes (every 3-4 weeks)	40
Group work	40
Attendance	20
Midterm exam	100
Final exam	100
<b>Total points</b>	<b>450</b>

<b>Grade</b>	<b>Percentage</b>	<b>Points</b>
A	100 – 90%	405
B	89 – 80%	360
C	79 – 70%	315
D	69 – 60%	270
F	Below 60%	Below 270

*iClicker™ questions (bonus points)*      20

### **Reading assignments (weekly; 5 points each)**

The purpose of the Reading Assignments is for the student to complement the knowledge/skills acquired in class with the text (e.g. textbook, online material, etc.). In addition, it will provide to student the opportunity to read with a purpose and critically think while reading. **Two critical thinking questions must be answered weekly and submit on the due date listed in the schedule.**

### **Quizzes (every 3-4 weeks; 10 points each):**

Quizzes (refer to the schedule on this syllabus) will assess the student's skills and knowledge gained from the previous 3-4 class sessions. It will also serve to keep the student studying during the course, serve as a review for the Midterm and Final Exams, and writing practice for your Writing Assignment.

### **iClicker Questions (2 per week; 1.25 points each; 20 bonus points total)**

The purpose of iClicker™ question is to assess a student's knowledge *in-class* and to contribute a scenario for Team-Based learning. Questions will be presented while in class and students will answer through smartphone app. More importantly, students will have the opportunity to discuss the questions between peers before answering the question.

### **Group work report (8 group work activities; 5 points each report)**

The purpose of the *In-class group work* is to put into practice, through case studies, experimental designs, and discussions, among others what you learned during the week, and, similar to the reading assignments, to practice writing. Your report must include,

- 1) Title of the group work
- 2) Purpose of the group work activity
- 3) What was performed (one paragraph, not less than 3 and not more than 5 sentences)
- 4) What you learned (one paragraph, not less than 3 and not more than 5 sentences)

### **Writing assignment**

The purpose of the writing assignment is to assess your written communication skills to a non-expert audience: **an individual not expert in biochemistry**. With your writing assignment, **you must provide enough information for a non-expert individual to understand the importance of that particular biochemistry topic in our daily lives.**

- You must choose from **any of the topics to be discussed in the course**.
- The writing assignment has four different deadlines (refer to the schedule below): **selection of the topic, outline, the first draft, and final draft.**

### **Rubric (70 pts total points)**

Submitting topic, outline, 1 <sup>st</sup> draft on/before deadlines	15 points (3 deadlines x 5 points)
Submitting final draft on/before deadline	10 points
Correctly applying a particular MLA writing format	10 points
Having paragraphs with leading, supporting, and transition sentences	20 points
Discussing one idea per paragraph	10 points
Using less than 30 biochemistry terms	5 points
Following the page limits (not less than 3, not more than 5 pages)	10 points
<b>Total points</b>	<b>70 points</b>

### **Submitting assignments**

*Dropbox, Google Drive, and SkyDrive* cloud folders will be set-up to turn in **reading assignments, group work reports, and writing assignment**. This will be the preferred method.

Assignments may also be submitted via email at [friveram@mdc.edu](mailto:friveram@mdc.edu)

**Printed material will be allowed, but digital files mentioned above would help save the environment.**

### Final Course Schedule

Date	Week	Topic	Readings	Assignments Due Dates
Aug-25	W1	-Course Introduction -Discussion of Syllabus -Foundations of Biochemistry -Water	Chapter 1. 2	
<b>Sep-01</b>	<b>W2</b>	<b><u>Labor Day (No class)</u></b>		
<b>Sep-08</b>	W3	- Amino Acids	Chapters 3	-Reading assignment #1 <b>-Select the writing assignment topic</b>
<b>Sep-15</b>	<b>W4</b>	<b>-Quiz 1</b> -Proteins	Chapter 4,5	-Reading assignment #2
Sep-22	W5	-Enzymes	Chapter 6	-Reading assignment #3
Sep-29	W6	-Nucleic acids	Chapters 8	-Reading assignment #4
Oct-06	W7	-Lipids and membranes	Chapters 10, 11	-Reading assignment #5 <b>-Submit outline</b>
<b>Oct-13</b>	<b>W8</b>	<b>-Quiz #2</b>		-Reading assignment #6
<b>Oct-20</b>	<b>W9</b>	<b>-Mid-Term Exam (100 points)</b>		
<b>Oct-27</b>	W10	<b>-Group Work</b>		
<b>Nov-03</b>	W11	-Glycolysis	Chapter 14	-Reading assignment #7 <b>-Submit First Draft</b>
<b>Nov-10</b>	<b>W12</b>	<b>-Quiz #3</b> -Glycolysis (cont.)	Chapter 14	-Reading assignment #8
Nov-17	W13	-Metabolic Regulation	Chapter 25, 26	-Reading assignment #9
Nov-24	W14	-DNA/RNA Metabolism	Chapter 25, 26	-Reading assignment #10
<b>Dec-01</b>	W15	-Genes and Chromosomes	Chapter 24	-Reading assignment #11 <b>-Submit Final Draft</b>
Dec-08	W16	<b>-Quiz #4</b> -Regulation of Gene Expression	Chapter 28	-Reading assignment #12
<b>Dec-15</b>	<b>W17</b>	<b>-Final Exam</b>		