

Palm Beach State College
Course Syllabus – Hybrid/Web Content

General Class and Course Information

Course number: BSC2426C Class Reference Number: 149331 Term: Spring 2012

Course title: Intro to Biotechnology Instrumentation Credit/Contact hours: 2

Course Description:

This course is designed to provide hands-on experience in some of the basic and essential bioprocess instrumentation skills required in chemistry, molecular biology and biotechnology. Students will learn the basics of good laboratory practice, safety, aseptic technique, measurements, calibrations, calculations and preparation of solutions/samples. This knowledge will then be applied to advanced instrumentation utilizing spectrophotometers, centrifuges, thermal cyclers, GC/MS, FPLC, and bioreactors. Students will also gain a well-rounded understanding of the maintenance of these various instruments; from ordering supplies to requesting technical support and daily/monthly maintenance.

Course Learning Outcomes: As a result of taking this course, the student will be able to

1. Identify and apply the common safety precautions in a biotechnology laboratory.
2. Maintain a laboratory notebook in accordance to professional guidelines.
3. Prepare solutions for laboratory use.
4. Use a pH meter.
5. Use, calibrate and maintain various laboratory instruments/equipment.
6. Develop and execute experiments as would be expected in an entry level lab position.
7. Elucidate if collected data is valid, useable, and significant.
8. Use spectroscopy as an effective tool in the lab.
9. Identify small molecules in unknown samples using GC/MS techniques.
10. Separate molecules using an HPLC.
11. Learn the principles of cell culture, set up and run a fermentation in a bioreactor.
12. Understand how to use instrumental methods in both quantitative and qualitative measures in a bioprocessing environment

Full Course Outline: Click on the following link:

http://www.palmbeachstate.edu/asp/IE_ShowOutline.asp?show=Y&CourseID=BSC2426C

Class Schedule

Tuesdays and Thursdays, 6-8 P.M. in SC 268

Textbook(s) Information: No textbook is required, however students are strongly encouraged to consult the books recommended in the "suggested materials" section below.

Web Content Information: See information below regarding Blackboard use and login.

Professor's Contact Information

Professor's Name: Sandro Matosevic, Ph.D.

Office Location: Palm Beach Gardens Campus, Bioscience Complex. SC 209

Telephone: (561) 207-5550

Email address: matosevs@palmbeachstate.edu

Home Page: <http://www.palmbeachstate.edu/x461.xml?id=matosevs>

Office Hours: By appointment

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Class Requirements

Assignments :

This is a laboratory experiment-based course that will focus heavily on experimental detail, procedure, and write-up. At the conclusion of each Learning Module students will write a formal lab report detailing the results of the experiment. This report will consist of the basic components of a science research report: Purpose, Background, Materials and Methods, Results, and Discussion. It is the student's responsibility to complete the assignments and turn them in on time. Completion of this report is required to receive a grade for the Learning Module.

Late Assignment Policy:

All lab reports are expected to be completed on time. If, due to an emergency, a student cannot meet the due date, s/he is to request an extension from the professor. Documented evidence from a doctor, emergency room, or other will be necessary for extension requests. It is at the Professor's discretion to either accept or deny a late assignment. If an extension has NOT been granted, 25% of the TOTAL grade for the Learning Module will be deducted for each day the report is late.

Grading Scale and Policy:

The grading scale is based upon attendance, participation, lab reports and exams/quizzes. Students will receive a grade for each Learning Module except the first (Introduction). This grade will be based on attendance and participation (50%) and the lab report (50%). An accurate record of attendance will be kept for each class. Additionally, there will be periodic quizzes based on the material in the Learning Modules. Lab notebooks may also be taken up at any time and checked for completeness, neatness, and accuracy. These notebook checks will count towards the Quiz grade. Finally, there will be two formal in-class exams.

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	≤ 59%

Components:

- Learning Modules (attendance, participation, lab report) 40%
- Quizzes and Notebook 20%
- Exams 40%

Tests, Quizzes, and Final Examination Schedule: There will be periodic short in-class quizzes. The instructor will give advance warning of a quiz at least one class period ahead of time. The quiz will cover material from the previous Learning Module. Quizzes will be mostly short answer and/or problem based.

There will be two exams: a midterm exam and a final exam. Each exam will count for 20% of your overall grade. Assistance for the exam can be provided via email, course website or your own study sessions.

Make-up Exam Policy:

Make up tests/quizzes are only given in emergency situations. These exams may be in a different format than the original class exam. The student is responsible for the fee to take the proctored test in the Test Center. Special arrangements for make-up exams should be discussed with and approved by the professor. For any other situation, a grade of zero will be given for missed exams/quizzes. There are absolutely NO make-up lab experiments.

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Distance Learning Class Information

This course is taken in part via the Internet (hybrid classes), or includes a web component. Before you decide to take the course under these conditions, it is recommended that you:

- take the following assessments to determine if distance learning is best for you:
 1. [Should I take a distance learning class?](#)
 2. [Do I have enough time to take a distance learning class?](#)
 3. [Do I have the technical skills and knowledge to learn online?](#)
- read the [Distance Learning Frequently Answered Questions](#) page which include instructions for logging onto Blackboard, computer requirements, and basic computer skills students must have prior to enrolling a distance learning class.
- read the syllabus description below carefully.
- contact the professor by e-mail or by phone if you have any questions.

Computer Requirements

If you choose to take this course, you must have access to a computer that meets the [basic computer requirements](#) - <http://www.palmbeachstate.edu/x10620.xml>

SLC Computer Lab

If students do not have access to a computer at home, the SLC Computer Lab at a Palm Beach State campus can be used to complete course assignments. Visit the SLC Computer Lab web page at <https://www.palmbeachstate.edu/x13669.xml> for location and hours.

IT IS RECOMMENDED THAT THE STUDENT TAKING THIS COURSE AS A *HYBRID* COURSE NOT BE A NOVICE COMPUTER USER. THE STUDENT SHOULD KNOW HOW TO USE A MOUSE, NAVIGATE THE INTERNET, AND SEND/RECEIVE E-MAIL WITH ATTACHMENTS. VISIT THE FOLLOWING WEB PAGE FOR MORE INFORMATION REGARDING MINIMUM COMPUTER SKILLS STUDENTS MUST HAVE PRIOR TO ENROLLING IN A HYBRID COURSE - <http://www.palmbeachstate.edu/x10620.xml>.

This course has an Internet web site located at: <https://palmbeachstate.blackboard.com>

The course web site will be available three days prior to the start of the semester. Your password will not work until that time.

It is the student's responsibility to have accessed this site no later than August 22, 2011. The web site has a security system which requires a *Sign on* and a *Password*. Only registered students will be able to access the course.

To login to the course web site:

Go to <https://palmbeachstate.blackboard.com> **User Name:** Use your Palm Beach State Student ID Number (no hyphens). Your Palm Beach State Student ID Number can be found on the back of your student ID card. If you do not have a student ID card, you can obtain one in the bookstore at Lake Worth campus. For obtaining a student ID card on other campuses, check with the campus directly. **Password:** The student's Blackboard password will be the student's Palm Beach State Pin Number.

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What do I do if I forget my password or need assistance with Blackboard?

E-mail the Blackboard administrator at adminwebct@palmbeachstate.edu. You can also contact the Palm Beach State Student Helpdesk by sending an e-mail to studenthelpdesk@palmbeachstate.edu or contacting them by phone at (561) 868-4000. Be sure you have the following information available:

- your full name
- your Palm Beach State Student ID number
- course with the reference number
- details of the assistance needed and any error messages
- The Student Help Desk Hours of Operation are posted on the following web page:
<http://www.palmbeachstate.edu/x6363.xml>.

On hours and days that the Help Desk is closed, the student may leave a voice message or an e-mail and the issue will be addressed the next business day.

Class Policies and Methodology

Attendance: Professors are required to take attendance. Students are required to access the course Web site at least two times per week to read the required lecture material, check the discussion board and course e-mail regularly. Students are expected to obtain necessary lab materials and participate in course discussions on the website. Students are expected to attend ALL laboratory sections. Unexcused absences will result in the deduction of points from the Learning Module grade equal to the percentage of days of the module missed (i.e. if a module takes four class periods to finish, missing one day will result in a deduction of 25% from the module grade). 100% attendance and participation is expected.

Electronic Device Use: Laptops may be used for class-related functions ONLY. The use of cell phones or other electronic devices is not permitted in the lab. Cell phones should be turned off or silenced during class.

Email Policy:

The blackboard e-mail system is the official electronic communication from the Professor to all the students registered in this course, and from all the students to the Professor. The students are considered officially informed of any changes or special instructions or announcements through this system. The instructor's Blackboard e-mail address and discussion board will be checked once per day Monday to Thursday from 9:00 am – 6:00 pm. This means that weekends and holidays are not officially check days. The instructor will do their best to respond to all emails within 24 – 48 hrs, however, response time may vary due to holidays/weekends.

Equipment and Supplies:

Required Equipment:

- Lab coat and goggles (obtain from bookstore, medical supply store or uniform store)
- Calculator, Black pen, Ruler, Clear tape
- Access to a computer containing Microsoft Excel (or similar) with connection to a printer
- Materials for writing class notes (e.g. notebook) and storing hand-outs
- Spiral-bound Carbon-Copy Laboratory Notebook, 100 page (available in PBCC bookstore) – Hayden McNeil Specialty Products. ISBN: ISBN 978-1-930882-74-4. www.labnotebooks.net

Suggested Materials:

- Doran, P., 1995. Bioprocess Engineering Principles. London, UK. Academic Press, Inc. ISBN 10-digit: 0-12-220856-0, ISBN 13-digit: 978-0-12-220856-0. Available on Amazon.

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•Seidman L.A., 2008, Basic Laboratory Calculations for Biotechnology, San Francisco, CA. Pearson Education, Inc. publishing as Pearson Benjamin Cummings, ISBN 10-digit: 0-13-223810-1. ISBN 13-digit: 978-0-13-223810-6. www.aw-bc.com

Professor's Expectations:

The student is expected to participate in 100% of the lectures and laboratories along with completion of all assignments, quizzes, and exams.

Methods of Instruction:

Online web-component for distribution of laboratory materials along with communication and on-campus laboratory experiments.

Unique Requirements of the Class:

Following the online content of lab material, plus attendance and participation of the weekly lab sessions on campus, plus all exams/quizzes/assignments/ course-related material. All handouts will be delivered via Blackboard.

College Policies and Web Information

Academic Dishonesty

Academic dishonesty includes the following actions, as well as other similar conduct aimed at making false representation with respect to the student's academic performance:

(1) Cheating on an exam, (2) Collaborating with others on work to be presented, if contrary to the stated rules of the course, (3) Submitting, if contrary to the rules of the course, work previously submitted in another course, (4) Knowingly and intentionally assisting another student in any of the above actions, including assistance in an arrangement whereby work, classroom performance, examination, or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed, (5) Plagiarism.

Please refer to the **Palm Beach Community College Student Handbook**

(www.palmbeachstate.edu/Documents/Marketing/studenthandbook.pdf) for further information.

Classroom Etiquette and Student Behavior Guidelines

Students will demonstrate respect for professors and fellow students. Behavior that is disruptive to a positive learning environment reported by the professor will result in a warning on the first instance; the second instance might result in expulsion from the course or campus.

Computer Competency Component

Each student will, to the satisfaction of the professor, demonstrate a fundamental understanding of basic computer operations through various professor-determined exercises and/or assignments.

Disability Support Services

Students with disabilities are advised, in compliance with federal and state laws, that accommodations and services are available through the office of Disability Support Services (DSS). It is the student's responsibility to contact Disabled Student Services Advisors and to submit appropriate documentation prior to receiving services. Please see the website at www.palmbeachstate.edu/disabilities.xml.

Eating, Drinking and Smoking

Eating and drinking are confined to areas designated on the campus. Smoking is not permitted in any College building and only in areas designated at each campus.

Student Responsibility Policy

When a student attends the College, s/he becomes subject to its jurisdiction. Students are expected to conduct themselves in a responsible manner, in all areas of campus life. By enrolling, they pledge to obey the rules and regulations of the College and are responsible for observing all College policies and procedures as published in the student handbook, the College catalog and other College publications. The student will be responsible for preparing for class, participating in class, and completing assignments on time.

Palm Beach State Websites of Interest

Please see this web page (www.palmbeachstate.edu/x340.xml) for a list of web addresses for students.

Withdrawal Policy for Individual Courses

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The last day to withdraw from a College course with a "W" grade in this course is March 27, 2011. It is the responsibility of the student to use the PantherWeb system or visit a campus Registrar's office to withdraw. An official withdrawal entitles the student to a grade of "W" in the class.

Department Contact Information

Department Contact Name: Dr. Libby Handel

Office Location: Palm Beach Gardens Campus, Bioscience Complex. SC 205.

Telephone: 561-207-5059

Fax Number:

Email address: handele@palmbeachstate.edu

Getting Started with a Web Class

1. Make sure you have all the computer system requirements as listed in the Computer Requirements section of this syllabus.
2. E-Mail the professor matosevs@palmbeachstate.edu with your name and phone number. The professor will communicate with you through Blackboard or your Palm beach State-issued email address.
3. Obtain course materials. The textbook(s) can be purchased at the Palm Beach State campus bookstore or online at <http://www.efollett.com>.
4. Log onto the course web site at :<https://palmbeachstate.blackboard.com> Use your [Pantherweb](#) logon information.
5. Once inside the course website, read the "Mandatory Online Orientation" and complete the *Orientation Quiz*.
6. Explore the different parts of the web page. Be sure to print the **syllabus, course calendar, and assignment sheet** so that you know what is expected of you during the semester.
7. Read the instructor's *Welcome* message on the discussion board and post a reply to it introducing yourself to the class.
8. Begin completing your assignments as listed on the course calendar.

Have fun!

February 2010