BSC2023 Lab – Human Biology Lab

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Course Description and Purpose

The BSC2023 Lab course for non-science majors illustrates the processes, concepts, and principles discussed in BSC2023 Lecture through virtual and kitchen-based investigative activities.

This course assumes very little or no prior scientific knowledge of biology, and thus serves for non-biology major students who wish to satisfy the lab portion of BSC2023, completing the Life Science requirement within the FIU Core Curriculum Natural Science category.

This course will expand the student's knowledge of how the human body works over successive levels of organization from molecules of life to organ systems to organisms. Lab assignments may include (but are not limited to) such work as hands-on (kitchen based) lab experiments, labeling activities, short answer essay questions and quizzes. There may also be writing assignments that will analyze data collected from the class. All of the assigned activities will be explained in each Lab module.

This is a separate course from the BSC2023 Lecture. It has its own scored activities. Do NOT assume, if you are currently taking the BSC2023Lecture, you have completed Lab work when you have actually completed Lecture work.

Natural Sciences

Our technologically dependent world requires an understanding of the processes that led us here. Learning the basic concepts and ideas of scientific fields provides contact with not just those fields but with how science is done. In these courses students study the scientific method through examination of the foundational theories of modern scientific thought. Students apply scientific principles and theories to problem solving, evaluate scientific statements, and incorporate new information within the context of what is already known.

Emphasizing the essential connection between theory and experiment, the hands-on laboratory experience provides the context for testing scientific theories.
Students will be able to describe the scientific method through examination of the foundational theories of modern scientific thought.

Course Objectives

Students will be able to:

- translate a greater appreciation of your own biology to how your organ systems work together to maintain your internal environment (homeostasis);
- demonstrate an understanding of human biology, and science in general, that will help you make sound decisions about contemporary issues of a biological or technological nature that will impact your life; and
- integrate both virtual and (kitchen based) hands-on lab experiments' procedures and outcomes to the process of scientific inquiry.

Important Information

Teaching Methodology

This is a fully online course in which all of the instructional materials and activities are delivered through Canvas and/or other internet-based media. This course is divided into Labs. Each Lab includes background material on the scientific material being explored.

Includes, but not limited to:

Active participation in kitchen-based experiments including recording & interpreting results and submitting experiment write-up with supporting digital pictures.

- Guided inquiry through illustrated text, animations, and virtual exercises assessed by quizzes and exams.

Policies

Please review **FIU's Policies webpage.** The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.

No material will be reopened except for an emergency that has impacted the FIU community, therefore material would be reopened for the whole class, not just for individual student. Any personal issues that impact your ability to complete work MUST:

- Be documented. Such original documentation would include funeral announcement (death in family), original official hospital receipts indicating dates for admitting and release (accident, illness, etc...Release from work/school document NOT accepted without other official documentation), etc.
- Prevent you from accessing the material during a major portion of the time it is open (last 3 weeks for quizzes and assignments and last 5 days for exams). The TA and Supervising Instructor must be notified of any issues 2 weeks before the close of the quizzes/assignments and 3 days before the close of the exams.

- If you choose to wait till the last few days (or hours) to do the work and something prevents you from completing the work (including an emergency), the material WILL NOT be reopened. By making the choice to wait, you are also accepting the possibility that (Murphy's Law) "If anything can go wrong, it will". And always at the worst possible time.

Technical Requirements and Skills

One of the greatest barriers to taking an online course is a lack of basic computer literacy. By computer literacy we mean being able to manage and organize computer files efficiently, and learning to use your computer's operating system and software quickly and easily. Keep in mind that this is not a computer literacy course; but students enrolled in online courses are expected to have moderate proficiency using a computer. Please go to the "What's Required" webpage to find out more information on this subject.

Please visit our Technical Requirements webpage for additional information.

Course Prerequisites

Since this course is designed for non-Science majors, there are no prerequisites. For this course to fulfill the UCC requirement, students must also take (at some point in time) the Lab component worth 1 credit. This is BSC2023L and can be taken online or in an actual lab environment on either campus. Any Quizzes or Exams taken in this course has no impact on the BSC2023 Lab grade. The BSC2023 Lab has its own Quizzes and Exams that are separate from Quizzes and Exams in BSC2023 Lecture.

Academic Misconduct Statement

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Academic Misconduct includes: **Cheating** – The unauthorized use of books, notes, aids, electronic sources; or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers or course materials, whether originally authorized or not. **Plagiarism** – The use and appropriation of another's work without any indication of the source and the representation of such work as the student's own. Any student who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is responsible for plagiarism.

Learn more about the academic integrity policies and procedures as well as student resources that can help you prepare for a successful semester.

Accessibility And Accommodation

Please visit our ADA Compliance webpage for information about accessibility involving the tools used in this course.

Please visit Accessibility within Canvas webpage for more information.

For additional assistance please contact FIU's Disability Resource Center.

Textbook

You will not need to purchase a Lab Manual for this course. All of the required text material is on the website.

Proctored Exam Policy

This course does not require an on-campus or proctored exam.

Textbook And Lab Materials

A list of grocery items needed for the kitchen based experiments is included under Course Content.

You will also need a digital camera (can be a cellphone camera) to take pictures that can be attached to each Assignment before it is submitted through Canvas. This can be a camera you already own, including your phone camera, or a disposable digital camera that can be purchased at a drugstore. **YOU MUST DOCUMENT THE EXPERIMENTS WITH PICTURES. EACH AND EVERY PICTURE MUST INCLUDE A HAND WRITTEN CARD WITH NAME AND ID NUMBER OR YOU WILL RECEIVE NO CREDIT FOR THE LAB ASSIGNMENTS** and they will be returned to you for re-submission.

Please be aware that correctly following directions is part of successfully completing the work and earning points. The faculty member scoring the write-up will not be responsible for trying to figure out work that has been incorrectly submitted. You will be assigned a zero and will receive feedback indicating how you may correct the error and resubmit.

You will not need to purchase a Lab Manual for this course. All of the required text material is on the website.

Expectations of this Course

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same for a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

Students are expected to:

- **Review the how to get started information** located in the course content
- **Introduce yourself to the class** during the first week by posting a self-introduction in the appropriate discussion forum.
- **Take the practice quiz (no credit towards grade)** to ensure that your computer is compatible with Canvas
- **Take Student/Instructor Quiz as many times as necessary to earn a perfect score. This Quiz acts to certify your knowledge of the course rules and deadlines and your acceptance of said rules.**
- **Interact** online with Instructor/s and peers
- **Review** and follow the course calendar for due dates and times. **All scored material in this specific course opens and closes at 9AM**. If you have a smart phone, put those dates and times with alerts in your phone so you do not miss them.
- Log in to the course **as many times as necessary to keep up with the work and complete scored material by the closing date and time.**
- Regularly check your registered FIU email and Canvas for course Announcements

The Instructor will:

- Log in to the course at least **3 times** per week
- Respond to **emails or messages** within **72 hours**
- Typically score and return submitted Lab Assignments within 72 hours of submission. This scoring may be done by a Graduate Student Teaching Assistant, so there may be times that the scoring will be done later than 72 hours due to the Graduate Student being in the field doing research. If the TA knows that he or she will be out in the field for a block of time, they will notify the students. Lab Assignments submitted during the late submission period may not be returned to students in time for the students to resubmit. So plan accordingly!

Course Detail

Course Communication

Communication in this course will take place via **internal messages (through Canvas Inbox) and Announcements.** You may also email the TA or me at our regular FIU emails, seen at top of syllabus. But be sure to put your name and course number in the subject line indicating you are an online student.

The course message feature is a private, internal Canvas only communication system. Users must log on to the Canvas system to send/receive/read messages. It is a student's responsibility to check their messages routinely to ensure up-to-date communication.

The Announcements are messages posted on your Canvas Course page and sent to your registered email account. This is typically your FIU account email. The announcement messages are very helpful because I may use this tool to inform the whole class about course issues such as material closing or any technology problems students have encountered. I will be sending out an

announcement the first day of class. If you do not receive it, contact Technology Support (through link on left-hand menu) and ask them to confirm your email account.

The TA and I receive many messages throughout the semester. For some, we respond individually, but to others we will respond as a message to the whole class because we view it as an issue that everyone needs to know about. And for some messages, we do not respond at all. Some of these are the messages that request we reopen material that has closed. Since the course guidelines are very clear on this matter, and since all students will have taken the Student-Instructor quiz covering these guidelines, there is no reason for us to tell the student what they already know: **the material will not be reopened**.

If you have a Quiz or Exam scheduling conflict, let the TA and myself know in advance. While we will **not** customize the course to fit your schedule, we may be able to open a Quiz or Exam early. YOU MUST NOTIFY us **IN ADVANCE** OF A CONFLICT, **NOT** AFTER THE EXAM HAS CLOSED! You must provide specific information on why you need a schedule change and the TA/Instructor has the right to either grant or deny the change based on the supporting information. Baring hurricanes and other natural disasters, there will be **no extensions** on the closing dates for the **Lab quizzes or Exam or Lab Assignments (see dates below).**

If you have an emergency that prevents you from accessing the material (the complete last 3 weeks of the ~6 weeks for quizzes and assignments and the last 5 days of the access period for exams), the Instructor **MUST** be contacted (at least 2 weeks before closing for Quizzes and Lab Assignments and 3 days before closing for Exams) before the closing of the material. These circumstances must be supported with original documentation such as the official hospital records showing day of admittance and release or police records showing day or arrest and release. A release from work/school document must be submitted with other official documentation as previously mentioned. It will not be accepted as the sole documentation. Any falsified documentation submitted will be treated as a Student Misconduct incident as governed by University rules.

If you choose to wait till the last few days (or hours) to do the work and something prevents you from completing the work (including an emergency), the material WILL NOT be reopened. By making the choice to wait, you are also accepting the possibility that (Murphy's Law) "If anything can go wrong, it will" and always at the worst possible time.

The Instructor/ TA typically logs in to the course 3 times a week, so you can expect to receive an answer to any messages within 72 hours. If it is an emergency, send an email to our regular FIU email accounts.

Visit our **Writing Resources webpage** for more information on professional writing and technical communication skills.

Assignments

While the on-line format of this course offers the student a degree of flexibility in when they participate in the work, **it requires self-discipline to stay on track through the semester.** The class will receive Announcement emails indicating where you should be (ideally) in the work

and how much you should have completed by that time and each student is responsible for **keeping up with their work**. The suggested work pattern is to do at least one Lab per week. If you choose to wait until the last few hours to complete your work, you are taking the chance of having something preventing you from completing the work, much to your unhappiness, since the work will **not** be reopened.

This course is designed in a format that divides the 12 Labs in half with Labs 1-6 open during the first half of the semester and then Labs 7-12 open during the second half of the semester with Lab 12 (virtual fetal pig dissection) making up Exam 2. This results in a work load of ~ one Lab per week.

Each Lab will include different activities that may include a kitchen-based or virtual experiment with required write-up submission that may include specific digital pictures of work, a quiz based on included text, and/or an assigned article with accompanying questions to be submitted with answers. **The only way we can verify that the student(s) did the experimental work is for it to be supported by the accompanying pictures with each and every picture having a hand written card with student(s) name and ID number within the picture. Any assignment submitted with a picture or pictures NOT including the hand written card will NOT be accepted and will be returned to the student(s) with and assigned 0 points and feedback to resubmit with said card in every picture. So DO NOT waste your money and time completing an experiment and not including the hand written card in EVERY picture submitted.**

For specific Lab Assignments (indicated in Instructions), students may (optional) work in groups. If you are working in a group, only one student (group leader) will submit the Lab Assignment write-up through the "Submit-it" link. In the submission, that student (group leader) will identify all the members of the group. **The card or paper that must be included within every submitted picture must have all of the members' names and numbers hand-written on it. You must also submit at least one picture that includes all members of the group in the picture (a group selfie will do) and that picture must include the ingredients/supplies for that specific experiment and a hand written card with all names and numbers.** That means you MAY NOT use the same selfie picture for all group experiments. All of the other members of the group (those not submitting the work) must also submit a statement (through the "Submit-it" link) of whose group you belong to. If you do not submit this statement, there will be no way of assigning you points for the work. All members are equally responsible for the quality of the work and confirming that the work has been correctly submitted with required pictures.

Only some Assignments must be submitted with pictures of the experiment. Those lab assignments' instructions will tell you what specific pictures are needed for your submission (seen on the Dropbox/ Submit it link). Pictures can be taken with one camera, developed, and then the specific pictures can be attached to the specific assignments before they are submitted.

As explained previously, Lab assignments will **NOT** be accepted without these supporting pictures and **every** picture **MUST** have within the picture a card or piece of paper with your name and Panther ID# hand-written on it. You may NOT photoshop a label into the picture; it must be hand written with your name and number or, if working in a group, the names and

numbers of each member of the group. This also means that all members of the group must be present for the experiment work.

All submitted work MUST be in the student's own words. Some Lab Assignments are answering questions about a specific article. You may NOT copy and paste answers from the article. Any submissions not in the student's own words will be returned with 0 points and feedback to resubmit in your own words.

The semester is divided into two halves. The dates stated in the syllabus are when the mentioned Labs open. The labs stay open until the stated closing date. Which means Labs 1-6's text material is open from August 20-October 12, with the quizzes closing at 9am on October 5 and the Lab Assignments with the potential for earning full points due on the same time and day (October 5). Lab Assignments submitted after 9AM, October 5 but before 9AM, October 8, will be viewed as a late submission and may have up to 30% of potential points deducted. Exam 1 opens on October 5, 9AM, and closes on October 12, 9AM. It is each student's responsibility to check their Grades to determine if they have earned the maximum number of points for a submitted Assignment. **If they have not earned all possible points, they should reopen their submission to read the feedback and then resubmit.** Each Assignment may be submitted up to 2 times.

Assignments submitted during the late submission period may not be returned to the student with feedback in time for the student to resubmit.

Labs 7-11's text material are open October 12 - November 30 with the quizzes closing at 9am on November 23 and the Assignments, with the potential for earning full points, due on the same time and day (November 23**). Lab Assignments submitted after 9AM November 23 but before 9AM, November 26 will be viewed as a late submission and may have up to 30% of potential points deducted.** It is each student's responsibility to check their Grades to determine if they have earned the maximum number of points for a submitted Assignment. If they have not earned all possible points, they should reopen their submission to read the feedback and then resubmit.

Assignments submitted during the late submission period may not be returned to the student with feedback in time for the student to resubmit.

Exam 2 which is part of Lab 12 will be open November 23 till November 30 from 9am to 9am. Exam 2 is drawn from Lab 12, but while it covers material from all of the Labs studied throughout this semester, Lab 12 also has included supporting text.

Assessments

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum **hardware requirements**.

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or tablet. If you need further assistance please contact **FIU Online Support Services**.

Quiz and Exam Expectations:

- **Please note that the semester is divided into two periods as seen below.**

- Quiz duration: 30 minutes
- Exam duration: 1 hour
- Details for results:

1. Students will be able to see the results immediately after Quiz or Exam.
2. Students will they be able to see the total earned score only.
3. Students may take each Quiz or Exam 2 times. But if you choose to do so, you will receive the **average** of the two scores. Questions on the second attempt may be different from the first attempt.

- Each student will be required to enter into a "course contract" with the Instructor by taking the INSTRUCTOR-STUDENT CONTRACT QUIZ found on the Course Content page and under Assessments. This contract specifies that you have read the Syllabus and therefore understand the time frame for completion of the Exams, Quizzes, and Discussion Postings. You do not receive points for this quiz You may take the quiz as many times as is required for you to earn a perfect score.

Grading

Course Requirements	Number of Items	Points for Each	Total Points Available	Weight
Quizzes	9	10	90	25%
Exams	2	50	100	40%
Assignments	9	varied	145	35%
Total				**100%**

Letter	Range (%)	Letter	Range (%)	Letter	Range (%)
A	Above 92	B-	80 - 82	D	60 - 69
A-	90 - 92	C+	77 - 79	F	< 60
B+	87 - 29	C	70 - 76		
B	83 - 86	D+	67 - 69		

Course Calendar

Weekly Schedule

Date	Tasks
	Welcome to Human Biology Lab - Read information on Homepage and Syllabus and familiarize yourself with the Canvas online course structure by looking at Lab 1 (quizzes and assignments will not open until August 24).
August 20	Review Shopping list for items to be used in hands-on (kitchen-based) lab experiments. This list is linked on the Course Material page.
	- **Take Student-Instructor Quiz** (You may take this as many times as is necessary to earn a perfect score.
	Lab 1 - Scientific Method; Metric System
	includes: - Height/Arm Span Data collected from a previous semester's class has generated a data set for this course...this data set will be used to explore the process of scientific inquiry, focusing on Scientific Method - An **Assignment**, based on exploration of Scientific Method and utilizing class data set will be submitted. On-time submission: October 5, 9AM; late submission by 9AM, October 8. - A **quiz** which will cover metric system and Scientific Inquiry. close 9AM October 5; no late submission period
	Lab 2 - Microscope & Cells includes: - Cellular Respiration, a hands-on (kitchen-based) lab experiment - An **Assignment** consisting of experiment questions/write-up using
1st Period	Scientific Method to analyze experiment outcomes. On-time submission: October 5, 9AM; late submission by 9AM, October 8.
May 7 - June 15	
	- A **quiz** covering information illustrated in Microscope material; close 9AM October 5; no late submission period
	Lab 3 – Homeostasis includes: - Acid/Base Indicator, a hands-on (kitchen-based) lab experiment - An **Assignment** consisting of experiment questions/write-up using Scientific Method to analyze experiment outcomes and answer questions related to Homeostasis. On-time submission: October 5, 9AM; late submission by 9AM, October 8.
	- A **quiz** covering material illustrated in Respiratory; close 9AM October 5; no late submission period
	Lab 4 – Biomolecules includes: - Text that gives a background on Biomolecules - Explanation of a typical lab's Biomolecules Experiments

- 4 URL's linking to interactive exercises exploring the structure and functions of Biomolecules
- A Guide to Biomolecules that poses questions to be considered as the student finishes each Activity. This Guide will help prepare the student for the Biomolecules Quiz.
- A quiz covering the Biomolecules material provided in this Lab; close October 5, 9AM ; no late submission period

Lab 5 – Cardiovascular includes:
- General information on the Circulatory System
- Illustration of Heart Anatomy
- URL to BioCoach Activity for "The Beating Heart" and "The Vascular Highway"; a quiz will be taken at the end and then included as part of the Cardiovascular Lab Assignment
- Heartbeat and Pulse Rate Experiments, to be performed with a helper
- **Assignment** that will include questions from Heartbeat and Pulse Rate Experiments and quiz taken at end of BioCoach Activity. On-time submission: October 5, 9AM; late submission by 9AM, October 8.

- A **quiz** covering Cardiovascular material and information given during the BioCoach Activities; close 9AM October 5; no late submission period

Lab 6 - Cell Structure includes:
- General information on Cell Structure
- A background on the processes of Diffusion and Osmosis
- Diffusion and Osmosis - a hands-on (kitchen based) lab experiment
- An **Assignment** consisting of experiment questions/write-up using Scientific Method to analyze experiment outcomes and answer questions related to Diffusion and Osmosis. **This experiment takes a couple of days to complete, so give yourself enough time**. on-time submission. On-time submission: October 5, 9AM; late submission by 9AM, October 8.

- A **quiz** on material covered in Cell structure and Diffusion info; close 9AM October 5; no late submission period

October 5-12
EXAM 1

EXAM 1 opens 0900 (9:00 AM), October 5; closes 0900 (9:00 AM), October 12

**None of these Labs (7-11) will require materials for a kitchen-based experiment nor will they require pictures.*

2nd Period
October 12 - November 30

Lab 7 (individual work only) - Digestion, Nutrition, Ideal Weight includes:
- Keeping a Physical Activity Diary which will be utilized in completing an Activity Intensity Summary, an Energy Cost for Activities exercise, and an Estimation of Total Energy Expenditure exercise.
- A Nutrition **Assignment** will include questions answered from information recorded and calculated using the previous exercises. This Assignment takes 3 days to complete, so give yourself enough time. On-

time submission: 9AM, November 23; late submission by 9AM, November 26.

Lab 8 - Musculoskeletal; Tissues includes-
- links to Musculoskeletal text, Adduction-Abduction, Inversion, and Isotonic-Isometric illustrations and information
- link to Article: Preserving a Fundamental Sense: Balance which will be the basis of a Balance experiment
- Balance experiment **Assignment**, in which student will write up results of performing
Balance experiment and using observations made about other members of their family or friends, create hypotheses that will relate to importance of maintaining musculoskeletal strength in terms of being able to maintain balance. On-time submission: 9AM, November 23; late submission by 9AM, November 26.

- a **Quiz** on the material covered in the previous links. closes 9AM, November 23 (no late submission)

Lab 9 - Reproduction; Birth Control; STDs includes:
- 4 Articles relating to issues of Reproduction, Birth Control, and STD's
- A question based Exercise referencing the 4 Articles
- **Assignment** made up of answered questions. On-time submission: 9AM, November 23; late submission by 9AM, November 26.

Lab 10 - Nervous System; Senses; Drugs includes:
- a link to an interactive exercise in Understanding Addiction
- 4 Articles covering Nervous System topics.
- link to questions on 4 Articles, focusing on analyzing information given in the Articles
- **Assignment** of Articles' questions. On-time submission: 9AM, November 23; late submission by 9AM, November 26.

- a Drug Addiction **quiz** on material covered in interactive exercise. closes 9AM, November 23 (no late submission period)

Lab 11 – Genetics includes:
- links to interactive websites: Gene on a Chromosome, Finding a Gene, Human Genetics, Genetic Traits, and Inherited Disease (for you to prepare for quiz0
- link to a Lab Review
- Quiz on material covered in Genetics Lab. closes 9AM, November 23 (no late submission period)

- There is no Lab Assignment for this Lab...only the quiz.

EXAM 2	**Lab 12** - The virtual Fetal Pig Dissection will be the basis for Exam 2. Questions will be drawn from the actual Virtual Dissection and from information on the organ systems that are found in both pigs and humans.
November 23-30	**EXAM 2** opens 0900 (9:00 AM), November 23; closes 0900 (9:00 AM), November 30