Lab is a **separate class** from the lecture. The timing of lab and lecture topics **will not always align depending on schedules**. Even though they are less credit hours, **labs will require the same amount of study time**! You are required to print out the syllabus. You may bring a tablet or laptop to lab if you do not want to print the pages.

TENTATIVE SCHEDULE for

**BSC 2094L – Anatomy & Physiology II Laboratory**

Spring 2019

Course Reference #: BSC 2094L -\_\_\_ \_\_\_ - \_\_\_ \_\_\_ \_\_\_

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| **Week Of** | **Lab Topic** | **Required\* Lab Manual Readings** |
| Jan 7 -10 | Introduction, Safety; Microscope; Blood cells | v-viii; p. 1-20 |
| Jan 14 -17 | Blood Tests | 10 - 20 |
| Jan 21 - 24 | Heart Model / Pig heart dissection ***(Monday - Holiday)*** | 21 - 32 |
| Jan 28 - 31 | Heart physiology (Cardiac Curve/EKG/Blood Pressure) | 33 - 40 |
| Feb 4 - 7 | Heart physiology cont. | 33 - 40 |
| Feb 11**\*** - 14 | Review ***\*(Write-up 1 Due)*** | 1 - 40 |
| **Feb 18 - 21** | **MID-TERM PRACTICAL** | 1 - 40 |
| Feb 25 - 28 | Respiratory System, Spirometry  | 61; 83 - 88 |
| Mar 4 - 7 | Kidney and Nephron model Reproductive system  | 72 - 82 |
| Mar 11 - 14 | Digestive System, Urinary system, Urine tests | 62 – 82; 89 – 96 |
| Mar 18 - 22 | **No Classes – Spring Break** |  |
| Mar 25\* - 28 | Fetal Pig Dissection: Upper Blood Vessels***\*(Withdrawal date: Monday, March 25, 2019)*** | 41 - 51 |
| Apr 1 - 4 | Fetal Pig: Lower Blood Vessels / Lymphatic System | 52 - 60 |
| Apr 8**\*** - 11 | Review ***\*(Write-up 2 Due)*** | 41 - 96 |
| **Apr 15 - 18** | **FINAL PRACTICAL** | 41 - 96 |

**COURSE DESCRIPTION:** This is the lab component for BSC 2094. Lab topics include hematology,

immunohematology, heart anatomy, dissection, respiratory system physiology, and urinalysis.

**PREREQUISITE:** Student must score into college level mathematics and reading on placement tests,

 BSC 2010 & BSC 2010L, BSC 2093 & BSC 2093L

**COREQUISITE:** BSC 2094

**CONTACT INFORMATION**:

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| --- | --- |
| **Technical Lab Specialist, TLS:** | **Instructor of Record, IOR:** |
|  | Sarah Rodgers |
| **Email:** | **Email:** srodgers@irsc.edu |
|  | **Office:** N124 (knock at N122) |
|  | **Phone:**772-462-7149 |

The **Instructor of Record** **(IOR)** for this course is Professor Sarah Rodgers. The IOR is responsible for the selection of experiments and exams developed and approved by Biology Department Faculty, approves all assignments, and assigns the student’s grade for the course. In addition to the IOR, a **Technical Lab Specialist (TLS)** is also assigned to this course. The role of the **TLS** is to facilitate the performance of the assigned experiments within the laboratory setting. The **TLS** also assists with the grading of assessments under the direction of the course instructor and other biology faculty. If you have any questions or concerns, please first try to work with the course **TLS**. If the issue cannot be resolved, Professor Sarah Rodgers (772-462-7149, srodgers@irsc.edu) is also available to assist. Any correspondence must include the **student’s name** and **course reference number**. The IOR/TLS will generally respond to the student within 2 business days *(note: failure to include* ***name*** *and* ***reference number*** *in initial correspondence, may result in delayed to no response)*.The IOR reports the grade the student earns over the course of the semester and will issue any incompletes (I) or withdrawals (W) that are needed.

**REQUIRED MANUAL/ TEXT**: A&P II Laboratory Manual BSC 2094L 2nd ed. ISBN 978-0-7380-9030-6

 Anatomy & Physiology, The Unity of Form and Function, 7th ed, by Saladin.

**OPTIONAL TEXT**: The A & P Coloring Book by Marieb

 The Visual Dictionary of the Human Body (ISBN: 1-879431-18-1)

 Pictorial Anatomy of the Cat by Gilbert

**SUPPLIES:** A dissecting kit is required and can be purchased in book store or online. The student is also

responsible for any optional supplies desired including gloves, goggles, mask, lab coat and Vick Vapor Rub for dissections.

**Additional Resources Available:** [http://biology-irsc.weebly.com](http://biology-irsc.weebly.com/)

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| The **Miley** **Library** serves as IRSC's main library.  The library is an information place providing professional assistance, library books and media, and access to the library's electronic resources. There is an extensive online database system also available through IRSC’s website [www.irsc.edu](http://www.irsc.edu)  |

**GRADES:** Grades are based on two exams, or 300 points total, and two lab write-ups, 100 points total *(The Mid-term Exam is worth 100 points, the Final Exam is worth 200 points and each lab reports is worth 50 points each).* Final course grades are based on the percent of 400 possible points earned. **\*\*\*Also see ATTENDANCE policy below that may affect the grade\*\*\*** Course grades are assigned on the following basis and parentheses () include the minimum points needed for that grade:

**A:** 90% - 100% (> 360 pts.)

**B:** 80% - 89% (> 320 pts.)

**C:** 70% - 79% (> 280 pts.)

**D:** 60% - 69% (> 240 pts.)

**F:** below 60% (< 240 pts.)

The student’s test grades can be viewed at any time on Blackboard, thus the student has continual access to their current academic standing in the course. It is the student’s responsibility to monitor their grade and also to approach the instructor for academic support/suggestions if the student is not earning the grade they desire. **Instructor contact must be administered in a timely manner**, as last minute concerns cannot be addressed or remedied, nor can they positively impact final grades.

**\*\*\*No extra credit projects will be granted; your grade is entirely made up of the two exams and two reports.\*\*\***

W = student withdraw by Mon., March 25, 2019 I = incomplete for passing students only in EXTREME cases

 which *must be approved by the IOR*

If a student withdraws from the course, the student must email both the TLS and IOR. **The IOR will respond with a confirmatory email that the student has been withdrawn.** This is to minimize the number of Instructor Withdrawals (WI) that are requested after final grades are posted. Requests for Instructor Withdrawal (WI) after the student has taken the final exam will not be considered for students whom were failing prior to the final exam and did not speak with their TLS/IOR about possible solutions to pass the course.

**EXAMS:** Students are responsible for knowing their exact dates and times of their Practical exams based off

the schedule above. You will NOT be permitted late, even if it’s 30 seconds, so plan accordingly. This is to ensure all students have a fair and equal testing experience. Exams will be **timed** rotational station-based practical’s in which the students will view parts of the experiments they conducted in the weeks prior and will be expected to answer questions pertaining to that specific lab. Like all lab class periods, the students will be physically required to participate by walking and standing at each station during the test. Students will not be able to return to a station; only one rotation of the stations is allowed. Due to increased number of students in the Biology program, you will NOT be able to attend another instructor’s lab for an Exam if you have missed yours. Make-up dates are available for this course ONLY if the absence is approved by the IOR (see “Make-up Policy” below) and will be administered the same week as each practical is given on Friday @ Main Campus only.

**ASSIGNMENTS:** The required lab manual was designed specifically for this lab class. The student is

responsible for completing & understanding the information within the lab book and for knowing the due dates of the assigned lab reports/write-ups as listed below\*. Overall report grades correspond to point values for two reports, with a maximum of 50 points each. Assignment completion comprises 25% of your overall course grade, which can drop you full two grades, if you fail to complete it. If a student is absent and has an approved verifiable reason for the absence, they may hand in the assignment at the beginning of the next lab class without point penalty.

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| --- | --- |
| **\*Due Dates: (week of)** | ***Laboratory Report topic:*** |
| February 11 | *Cardiovascular worksheet & exercises* |
| April 8 | *Urinary Analysis*  |

**OPEN LAB POLICY:** Refer to General Lab Rules handout

**ATTENDANCE** All students (including DUAL Enrollment students) are expected to be present and punctual in lab in order to accomplish the learning goals for the lab practical examinations. It is solely the students responsibility to sign into class ON TIME in order to be counted present; TLS/IOR’s are not expected to remember students attendance nor will be held liable for a student failing to sign in. Attendance will be taken at the start of class; **failure to arrive on time will be marked as Absent.** It is the *student’s responsibility* to notify the instructor at the end of class that they arrived late. Note: **2 late arrivals are considered “Absent”** and will be penalized as such**.**

**Twelve points (3% of your grade) will be taken off for *EACH lab class missed*;** absences will be assessed at the end of the course.**Students will receive 1 free absence *per semester*.** For example, if you miss two lab classes duringthe semester and you ended up with an 80 average, then your final average would be a 77 and you would receive a C in the course.

**Alternative Lab Participation (ALP):** If you happen to know you will be missing a lab class, check the Weebly lab schedule immediately to review possible alternative options to participate in another instructor’s lab so you will not miss that week’s experiment. Attending another instructor’s lab **does NOT count as “attending” your regularly scheduled lab**, but will ensure you learn the content you will be tested on. You can find other lab times and locations at [http://biology-irsc.weebly.com.](http://biology-irsc.weebly.com/) And you will need to contact the alternative lab’s instructor to ask permission if you can attend (students cannot attend if the instructors lab does not have an alternative lab bench seat available). It is the student’s responsibility to initiate finding a time and day that works with their schedule to ensure they do not miss learning content.

\**Note for Friday Labs: Lab experiments are set up by week, so if a student happen to miss their Friday lab class, they will not have any opportunities to sit in a later lab class to participate in the experiment.*

To effectively utilize lab time, preparation is required on the part of the student. The student should

read the assigned laboratory exercises **prior to class** to become familiar with details for lab BEFORE lab starts. (NOTE: The above schedule is only tentative and each student is responsible

for knowing his/her exact lab days.)

**EXTRA CREDIT:** No extra credit is given.

**LAB ATTIRE:** Appropriate attire is required for your protection. In keeping with Federal regulations, **students are required to wear flat closed-toe, close-heel shoes in laboratory**. The attire worn in the laboratory work setting should include full coverage of legs (long pants or skirt), shirt with sleeves (not low cut and no bare midriff), hair restraints for long hair, and no dangling jewelry. **If you do not come properly dressed for lab, you will NOT will allowed into class or permitted to enter to take your Exam which will result in a score of “0” (zero points) for that Exam. NO EXCEPTIONS.**

**ELECTRONIC DEVICES:** All electronic communication devices are prohibited during exams or quizzes. The use of cell phones is prohibited during class and must be set on *silent* or *off* during the class period.  Any student who uses a cell phone to make or answer a call, or send and/or read text messages or emails during class time may be asked to leave and considered absent for that class. Electronic devices may be used to take pictures of slides or models when permitted by the instructor.

**CHEATING:** Cheating of ANY kind **WILL NOT** be tolerated by this Department or the College. *Anyone caught cheating will automatically receive a minimum of a zero for that assignment/test.* Any further episodes will result in an F in the class. Anyone who witnesses this inexcusable behavior and does not report it is also considered to be guilty of improper conduct.

**MAKE-UP POLICY:** Students must take all exams in the course reference number they are registered in. If a student misses the Mid-term Exam, they must contact the instructor **within 24 hours of the schedule exam time** with a *verifiable emergency*. Students whom miss both the Mid-term and Final exam, regardless of reason, will be withdrawn from the course. Approved make-up exams are given the same week as the students regularly scheduled practical, on Friday’s @ Main Campus only. Timeframe of the Friday make-up exam will be determined during testing week, thus if you miss your exam, you will need to contact your instructor immediately about your situation and options. If a student misses or cannot attend the opportunity to take their “approved” make-up exam, depending on the situation the IOR may assign an “I” or incomplete grade for the course, and the student will be required to return to make up the exam the following semester. Please NOTE: Make-up exams are standardized test and are generally more difficult as they are not written by the student’s particular instructor. If a student misses the Final, they must contact the instructor **within 24 hours of the schedule exam time** with a *verifiable emergency*. Only with an approved verifiable emergency via the IOR, *and only if they are currently passing the course*, will a student be eligible to receive an incomplete (I) for the course. If a student is not passing the course prior to the final exam, the missed final will count as a score of zero “0” as described above and will be used in calculations of the students final earned letter grade in the course.

**LEARNING OUTCOMES:** at the completion of the course, the student will be able to:

* Investigate the structure and functioning of the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems and relate them to the laboratory experience
* Apply problem solving, analytical, and communication skills based on the scientific method that will provide the foundation for lifelong learning and career development by explaining the importance of each aspect in the maintenance of homeostasis in the human body and investigating the counterpart of normal function as leading to particular pathological problems.
* Make use of technology to organize, acquire, and convey information relevant to the biological sciences.

**STUDENT ACCESSIBILITY SERVICES:** Indian River State College provides reasonable accommodations to students with documented disabilities through the Student Accessibility Services (SAS) Office. The rights of students with disabilities which pertain to post-secondary education are provided under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. Students who wish to request an accommodation for a documented disability may contact Student Accessibility Services at 772-462-7808, 772-462-7782 or e-mail accessibilityservices@irsc.edu. The ***Student is responsible to inform the instructor at the beginning of the semester*** so lab managers, staff, and the instructor have ample time to prepare any testing accommodations that will be needed. Extended Exam testing will be offered the same week as the students regularly scheduled practical, on Friday’s @ Main Campus only. If this timeframe/location conflicts with the student’s schedule, they will need to discuss alternatives with their specific instructor and confirm a new timeframe/location with the Lab Manager of that respective campus, at minimum two weeks prior to the first practical.

**NON-DISCRIMINATION AND NON-HARASSMENT POLICY:** Indian River State College and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. IRSC does not discriminate on the basis of race, color, national origin, ethnicity, sex (pregnancy), religion, age, disability, sexual orientation, marital status, veteran status or genetic information in its programs and activities. If you have encountered any form of discrimination or harassment, including sexual misconduct (e.g. sexual assault, sexual harassment, stalking, and domestic or dating violence), we encourage you to report this to the Title IX Coordinator. If you report such an incident of misconduct to a faculty member, that faculty member is required by law to notify the IRSC Title IX Coordinator. The following person has been designated to handle inquiries regarding non-discrimination and non-harassment policies: Adriene B. Jefferson, Equity Officer and Title IX Coordinator, 3209 Virginia Avenue, Fort Pierce, FL 34987; IRSC Main Campus, W Building, Room 207; (772)462-7156; ajeffers@irsc.edu.

**STATEMENT OF UNDERSTANDING of LAB MANAGEMENT PROCEDURES:**

The following is a list of practices required for safety purposes in the laboratories and in outdoor activities. Following rules of lab safety and using common sense throughout the course will enhance your learning experience by increasing your confidence in your ability to safely use chemicals and equipment. Pay particular attention to oral and written safety instructions given by the instructor. If you do not understand a procedure, Ask the Instructor, rather than a fellow student, for clarification. Be aware of IRSC’s policies and procedures regarding accident liability and any medical care needed as a result of a laboratory or outdoor accident.

**The following rules of laboratory safety should become a habit:**

* Report all accidents, injuries, and breakage of glass or equipment to instructor immediately.
* To prevent possible hazards to eyes or contact lenses, wear safety glasses or goggles during exercises in which glassware and solutions are heated, or when dangerous fumes maybe present.
* Assume that all reagents are poisonous and act accordingly. Read the labels on chemical bottles for safety precautions and know the nature of the chemical you are using. If chemicals come into contact with skin, wash immediately with water.

**DO NOT:**

* Taste, smell or ingest chemicals or pipette anything by mouth.
* Eat, drink or smoke in the lab at any time! Toxic materials may be present, and some chemicals are flammable.
* Carry reagent bottles around the room.
* Pour chemicals back into containers or chemicals in the sink or trash unless instructed to do so.
* Light a Bunsen burner near a gas tank or cylinder or move a little Bunsen burner.
* Operate any equipment until you are instructed in its use.
* Wear clothing that is extremely loose or tight fitting. Overly tight clothes, such as leggings and body suits, are not recommended, as any spilled material will be held next to the skin by these garments
* Wear overly loose clothing, long necklaces, ties, or scarves that can get caught in equipment or knock over work materials. Loose clothing should be secured so they do not get caught in a flame or chemicals.
* Wear jewelry under disposable gloves or when working on equipment.
* Work with matches, lighted splints, Bunsen burners, etc. when wearing acrylic nails.
* Attempt to change the position of glass tubing in a stopper.
* Point a test tube being heated at another student or yourself or ever look into a test tube while you are heating it.
* Attempt unauthorized experiments or procedures.
* Lean, hang over or sit on the laboratory tables or lift any solutions, glassware or other types of apparatus above eye level.
* Leave your assigned laboratory station without permission of the instructor.
* Fool around or "horse play" in the laboratory. Students found in violation of this safety rule will be barred from participating in future labs and could result in suspension.

**DO:**

* Follow all instructions given by your instructor.
* Report to the instructor any condition that appears unsafe or hazardous. Report all accidents to the instructor immediately, and ask your instructor for assistance in cleaning up broken glass and chemical spills.
* Note the location of emergency equipment such as a first aid kit, eye wash bottle and station, fire extinguisher, and switch for safety ceiling showers, fire blankets, sand bucket, and telephone (911).
* Work quietly — know what you are doing by reading the assigned experiment before you start to work
* Become familiar with the experiments you will be doing before coming to the laboratory. This will increase your understanding, enjoyment, and safety during exercises. Confusion is dangerous. Completely follow the procedures set forth by the instructor. Pay close attention to any cautions described in the laboratory exercises
* Store your books, bags, etc. on the shelves or under the work tables. If under the tables, make sure that these items cannot be stepped on.
* Keep your work area neat, clean and organized. Before beginning, remove everything from your work area except the lab manual and equipment, used for the experiment. Wash hands and desk area, including desk top and edged before and after each experiment. Use clean glassware at the beginning of each exercise, and wash glassware or at the end of each exercise or before leaving the laboratory.
* Wear clothing that, if damaged, would not be a serious loss, or use aprons or laboratory coats, since chemicals may damage fabrics.
* Wear safety goggles to protect your eyes when heating substances, dissecting, etc.
* Wear lab coats, safety glasses and gloves when in the lab. Shorts and sandals may not be worn into the lab even under a lab coat.
* Wear full coverage shoes that are non-skid and constructed of sturdy material must be worn at all times while in the lab as protection against broken glass or spillage that may not have been adequately cleaned up. No flip flops or sandals are permitted.
* Tie back long hair so it does not come in contact with fire, chemicals, biological or radiological substances or if there is a possibility of becoming entangled in equipment.
* Learn how to transport all materials and equipment safely.
* Handle hot glassware with a test tube clamp or tongs. Use caution when using heat especially when heating chemicals. Do not leave a flame unattended; make certain gas Jets are off when the Bunsen burner is not in use. Use proper ventilation in hoods when instructed;
* Keep solids out of the sink.
* Read chemical bottle labels; be aware of the hazards of all chemicals used. Know the safety precautions for each.
* Stopper all reagent bottles when not in use. Immediately wash reagents off yourself and your clothing and if there still on you, immediately inform the instructor. If you accidentally get any reagent in your mouth, rinse out with water thoroughly, and immediately inform you instructor.
* Use extra care and wear disposable gloves when working with glass tubing and when using dissection equipment scalpels, knives, or razor blades, when cutting or assisting.
* Administer first aid immediately to clean, sterilize, and cover any scrapes, cuts, and burns where the skin is broken and/or where there may be bleeding. Wear bandages over open skin wounds.
* Use caution during any outdoor activities. Watch for snakes, poisonous insects or spiders, stinging insects, poison oak, poison ivy, and so on. Be careful near water.

I understand and will abide by the IRSC Lab Safety Management Procedures AP-8.321 and all other instructions given by the instructor I am aware that should I commit any violation, my lab access privileges may be revoked and disciplinary action including suspension and/or dismissal and appropriate legal action may be taken.

**Student Printed Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Reference #\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**