1. COURSE DESCRIPTION & OBJECTIVES
Welcome to the LIFE102 laboratory! This part of the course is intended to provide you with hands-on experience that will complement the lecture portion of the course. We hope you will enjoy your laboratory experience. You and your group members will have different levels of knowledge and experience with science, and we’re looking forward to working together as a team to help everyone succeed in Life102.

Because of limits on the number of people who can fit in the lab rooms, we have split the class into two halves who have different schedules. Each week, half the lab section will attend lab in a meeting online on Zoom, and half will attend lab in person. Because you are not attending the in-person lab, you will instead have alternative online versions for these labs. These alternative online versions will all be asynchronous, which means that you can work on them anytime as long as you complete them by the deadline. In weeks in which you are scheduled for online labs, those labs will be synchronous – so you will attend on Zoom along with your classmates. Those labs will start at the scheduled time for your lab session (example: if you are scheduled for a lab 2-4:50, you would be online with your TA and group members at 2 pm). Your TA will be present for that first fifty minutes, but once in-person lab sessions start, you will have a second TA/instructor on hand for questions. Your online labs may take 3 hours total to complete, so please plan to be available the entire lab session. We have tailored announcements, calendar events, and due dates in Canvas to each half of the lab, so please set your Canvas notifications to receive these essential updates! Adjust your notification preferences at https://community.canvaslms.com/docs/DOC-10624

Note, there are eight lab times that already scheduled as synchronous. If you cannot attend the lab section you are assigned to due to scheduling conflicts or time zone differences, please follow these instructions to sign up for one of the other sections: https://registrar.colostate.edu/wp-content/uploads/sites/23/2020/05/Swapping-Classes.pdf (you must be logged in to view).

Course Learning Objectives:
At the end of this course, you should be able to:
- Conduct lab procedures safely and responsibly.
- Gather accurate data through careful and organized observation.
- Integrate observation, hypotheses, experimental design, predictions, data collection, data analysis, and interpretation to apply the process of science.
- Evaluate data by preparing and interpreting visualizations and drawing inferences.
- Interpret and construct scientific arguments by analyzing assumptions, claims, evidence, and rationales.
- Relate course lecture content to observations, experiments, and applications.
- Communicate effectively and respectfully using oral, written, and visual modalities both within lab groups and to other audiences.

2. INSTRUCTOR CONTACT
Contact information for your laboratory instructor/TA is available on the ‘Start Here’ Page in the Canvas site.
If you are struggling with Life102, contact your TA. They can help you in multiple ways to succeed in lab. It is completely normal to be challenged in this class (it's not just you!). Your TA can help you overcome the portions you are struggling with and help resolve any challenges with group work. Work on increasing the quality of your regular assignments and lab group work throughout the semester.

This whole process of online and hybrid labs will be challenging, so it’s even more important to keep in touch with your TA. TA’s will be available in regularly scheduled Zoom meetings for Drop-in hours. Participation in this drop-in discussion group is not required but is highly recommended.

Outside of lab time and drop-in hours, email your TA to ask questions. Often, TA’s will reply quickly, but they may have a 24-hour turnaround for emails during the work week and may not reply to emails sent on the weekend until Monday – TA’s are dealing with the same events that you are and may have other obligations. So please work in advance when possible.

If you have any questions about the Life102 labs, your first contact is your TA. If you have general questions or concerns regarding the LIFE 102 Laboratory, you may contact Donna Weedman, Laboratory Coordinator: 204 Yates 970-491-4061 donna.weedman@colostate.edu (include your name, course number, lab section number, and lab instructor’s name)

3. REQUIRED COURSE MATERIALS
Lab Manual: The Laboratory Manual for Life102 – Attributes of Living Systems 9th ed. (Weedman) is required. The lab manual is available at the CSU Bookstore https://www.bookstore.colostate.edu/SelectTermDept. While much of the content is presented through Canvas, you will need the information in your lab manual to complement the online information. The Canvas lab assignments and videos will direct you to the relevant parts of the manual.

Lab Notebook: Many science labs have specific formats for the lab notebooks that scientists use to record their experiments and observations. In this class, we ask that you choose any kind of notebook you would like for this purpose. We will refer to this as your ‘lab notebook’ throughout the course.

The following is only relevant should you change to in-person delivery:
Important information for Students: All students should fill out a student-specific symptom checker each day before coming to class (https://covidrecovery.colostate.edu/daily-symptom-checker/). In addition, please utilize the symptom checker to report symptoms, if you have a positive test, or exposed to a known COVID contact. If you know or believe you have been exposed or are symptomatic, it is important for the health of yourself and others that you report it through this checker. You will not be in trouble or penalized in any way for reporting. If you report symptoms or a positive test, you will receive immediate instructions on what to do and CSU’s Public Health Office will be notified. Once notified, that office will contact you and most likely conduct contact tracing, initiate any necessary public health requirements and/or recommendations and notify you if you need to take any steps.

For the latest information about the University’s response, please visit the CSU COVID-19 site (https://covidrecovery.colostate.edu/).
4. LAB POLICIES

Lab Materials: The Canvas page for each lab contains readings or videos for you to work through prior to completing your Pre-Lab Assignment. Access these through the Modules Page. Read the materials from the start through the ‘Pre-Lab Assignment’ tab before you start the assignment each week, as the assignment depends on these materials. The Lab Activities tab details all of the tasks to complete with your lab group during the synchronous online labs. To replace the in-person labs, you will watch videos and read the Lab Manual asynchronously. After you complete these activities, complete the Post-Lab Assignment. At any time, seek help from your TA. The ‘Dig Deeper’ tab links to supplemental resources that put the week’s content in context.

Laboratory attendance (online) is required. Lab exercises are designed to help you better understand lecture topics and to extend your knowledge of the process of science. We have designed many group activities, so your contributions to your group are essential during synchronous online labs. Laboratory attendance each week will consist of the following, with additional explanations on the following page:

- View videos and read materials associated with the Pre-Lab Assignment posted on Canvas (prior to completing the Pre-Lab Assignment)
- Complete and submit the Pre-Lab Assignment on Canvas (due 11:59 PM the night before your lab session each week)
- Complete the lab activities either online during the scheduled synchronous lab session or asynchronously, depending on the week (see notifications on Canvas!). In place of the six in-person labs, you will watch video recordings that explain lab activities and prepare you for your Post-Lab assignment.
- Complete the Post-Lab Assignment on Canvas (available from the end of your lab session for 4 days, due 11:59 PM according to Canvas due dates)

Absences. We have established a grading policy that allows you to miss two lab sessions without penalty, as we drop the four lowest grades from your weekly pre-lab and post-lab assignments (see below). In addition to the two weeks we can drop, you may also make up two additional labs in which you miss the online synchronous component by (1) communicating with your TA within 24 hours after your scheduled lab session that you plan to make up the lab and alerting them that you will attend their drop-in hours or request an alternative meeting time; and (2) attending either the TA’s scheduled drop-in session or an alternative meeting to discuss the missed activities. Neither your Pre- nor Post-Lab Assignment will be graded for any week in which you miss your synchronous online session unless you make arrangements with your TA ahead of time to complete these make-ups. Because all of the labs that replace the in-person sessions are asynchronous, no make-ups are necessary.

Late work (for ALL). Your Pre-Lab Assignment will be accepted after the due date until your lab session begins, with a 10% late penalty automatically assessed (-1 out of 10 points for submitting the day of). If submitted after the lab session starts, Pre-Lab Assignments will not be graded. Post-Lab Assignments will accrue 10% late penalties per day for up to two days (-1 out of 10 points for submitting 1 day late; -2 out of 10 points for submitting 2 days late), after which Post-Lab Assignments will not be accepted or graded.
5. GRADING
The laboratory portion of the course accounts for 25% of your total course grade. Because we understand emergencies may come up, we will drop your lowest grades. Therefore, if you are absent two weeks, these absences will not be calculated into your final grade.

Your laboratory grade will be based on weekly assignments (pre- and post-lab assignments) and a few small check-ins.

The Course Check-ins will be offered five times throughout the semester as a brief survey. The survey questions will provide the instructors with feedback to help students better navigate the hybrid delivery, and questions will also help students reflect on their progression in the course. Reflections on your engagement with the course are a key part of metacognition (thinking about how you think). Metacognition helps students refine their learning strategies for greater success, as one important outcomes of LIFE 102 is students develop more successful study strategies.

Pre-Lab Assignments (worth 10 points each) consist of questions based on the material you read or watch in advance of attending your lab session. These assignments are available on your Life102 lab Canvas page the week before your lab and are due at 11:59 PM (Mountain Time) the night before your lab session. Late submissions will be accepted until the lab session begins with a late penalty of 10%. Note, these assignments are open book and open note, but please complete Pre-Lab Assignments on your own without consulting classmates. The exception to this schedule is the first week of class; Pre-lab assignments for this week will all be due by 11:59PM on Friday (August 28th).

Post-Lab Assignments (worth 10 points each) consist of follow-up materials that build on the lab activities for additional practice applying concepts. These assignments are available on your LIFE 102 lab Canvas page starting just after your lab session and are due at 11:59 PM (Mountain Time) four days later. For example, if your lab is scheduled for Monday afternoons, your Post-Lab Assignments are due Friday night just before midnight. Late assignments will receive a 10% late penalty per day until the assignment closes after 2 days.

At semester’s end, your lab grade will be calculated from your highest 24 of the 28 Pre- and Post-Lab Assignments. Absences result in a score of 0 points on both Pre- and Post-Lab Assignments that week. For all assignments, you have one week after scores are posted in Canvas to discuss any grading discrepancies with your TA during the lab session or their drop-in sessions. Once that week has passed, the grade will be frozen in the grade book.

The point break-down is:
Course check-ins 5 @ 2pts each = 10pts
Weekly Pre-Lab & Post-Lab Assignments - 24 (highest of 28) @ 10pts each = 240pts
Total possible points: 250pts

6. ACADEMIC INTEGRITY AND CODE OF CONDUCT
We expect all students to act with integrity and respect, consistent with CSU policies on academic integrity and classroom behavior which can be found in the CSU General Catalog for 2020-2021 at: http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/#academic-integrity
Even if you think you know what plagiarism is, we encourage you to take the ‘Plagiarism Self Test’ on the TILT website https://tilt.colostate.edu/Integrity/StudentResources/Quiz for more information about what constitutes plagiarism.

The CSU honor pledge will be included on each assignment. The honor pledge is "I have not given, received, or used any unauthorized assistance."

7. CSU RESOURCES AND SUPPORT
Need Help? CSU is a community that cares for you. We’ve listed resources for tutoring support, mental health challenges, food insecurity, and more on the Canvas Site, available under the syllabus page and ‘Start Here’ page.

8. GT PATHWAYS
For transferring students, successful completion with a minimum C– grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html.
**Laboratory Schedule for Life 102 -- Attributes of Living Systems, Fall 2020**

Canvas includes list of due dates for weekly pre-lab and post-lab assignments as well as the course check-ins

<table>
<thead>
<tr>
<th>Week #/ Date</th>
<th>Topic</th>
<th>Exercises in Lab Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: 8/24 – 8/27</td>
<td>Asynchronous: Cell Structure and Organization</td>
<td>Ex. 1</td>
</tr>
<tr>
<td>2: 8/31-9/3</td>
<td>Synchronous: Scientific Method</td>
<td>Ex. 2</td>
</tr>
<tr>
<td>3: 9/7-9/10</td>
<td>NO LABS – LABOR DAY</td>
<td></td>
</tr>
<tr>
<td>4: 9/14- 9/17</td>
<td>Asynchronous: Diffusion and Osmosis</td>
<td>Ex. 3</td>
</tr>
<tr>
<td>5: 9/21- 9/24</td>
<td>Synchronous: Enzyme Activity and Specificity</td>
<td>Ex. 4</td>
</tr>
<tr>
<td>6: 9/28 – 10/1</td>
<td>Asynchronous:: Cellular Respiration and Fermentation</td>
<td>Ex. 5</td>
</tr>
<tr>
<td>7: 10/5 -10/8</td>
<td>Synchronous: Photosynthesis</td>
<td>Ex. 6</td>
</tr>
<tr>
<td>8: 10/12-10/15</td>
<td>Asynchronous:: Mitosis and Meiosis</td>
<td>Ex. 7</td>
</tr>
<tr>
<td>9: 10/19-10/22</td>
<td>Synchronous: Cancer</td>
<td>Canvas info</td>
</tr>
<tr>
<td>10: 10/26- 10/29</td>
<td>Asynchronous:: Genetic Transformation</td>
<td>Ex. 10</td>
</tr>
<tr>
<td>11: 11/2-11/5</td>
<td>Synchronous: Mendelian Genetics + Pedigrees</td>
<td>Ex. 8, 9</td>
</tr>
<tr>
<td>12: 11/9-11/12</td>
<td>Asynchronous:: Restriction Digestion</td>
<td>Ex. 11</td>
</tr>
<tr>
<td>14: 11/23- 11/26</td>
<td>No labs – fall break</td>
<td></td>
</tr>
<tr>
<td>15: 11/30 – 12/3</td>
<td>Synchronous: Population Genetics + Electrophoresis</td>
<td>Ex. 13</td>
</tr>
<tr>
<td>16: 12/7-12/10</td>
<td>Synchronous: Viruses</td>
<td>Canvas info</td>
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</tbody>
</table>