

BIOL 103: CELL & MOLECULAR BIOLOGY

Course Syllabus (Fall 2023)

Instructor: Dr. Jennifer Betancourt, Ph.D. (*she/her/ella*)

Hi & Hola! Welcome to Bio103

So what's this course about?

In Bio103, Cell and Molecular Biology, we will intricately study evolutionarily relevant cellular processes, and discuss in detail, their respective roles in survival, proliferation and death, at both cell and organismal levels. On a molecular level, we will dive into the structure and function of each of the four major macromolecules, and also explore collaborative relationships between them. This course will require the active use of the scientific method, promote critical and creative thinking approaches, demand respectful and frequent collaboration (i.e. you will work in teams), and will provide opportunities to analyze, challenge and present summaries of current scientific research. You will think, act and be real scientists!

Have a growth mind-set and remember that you can do hard things!

This may be one of the most challenging, rigorous and demanding courses you take during your academic career at SBCC, AND it can also be one of the **most rewarding!** For some, this may feel a bit overwhelming but *you can do hard things* and you will leave this course feeling very proud of your journey and *everything* it entailed- the ups, the downs and the stuff in between. Bio103 is designed to help you grow as a student and scientist, to prepare you for university transfer, to strengthen your self-confidence, broaden your interests, and to improve your professional skills regardless of career path. You are totally capable of all this if you put in consistent effort, own up to and learn from mistakes, get help anytime you need it, and maintain a positive attitude. I believe in you!

This course is giving "survival of fittest". To evolve as a scientist, you gotta adapt to challenges, make changes to study habits, forming new communities, and communicate more effectively. You will get out what you *genuinely* put in.

We are a team!

Just remember- we are in this together. I am committed to ensuring that ***every single aspect of this course aligns:*** lecture material will help you master the lecture content goals, and these in turn will help you complete weekly homework sets, which will help you prepare for exams. Each component is a piece to a really big, beautiful, crazy puzzle.

Help me help you. I want to help in any way that is appropriate, equitable and fair, but in order to do so, you'll need to take responsibility and communicate with me early, honestly and with ownership. I am committed to providing you with well-organized materials, clear instruction, and will hold you to high expectations starting on day 1. I will prioritize posting assignments with

plenty of time to complete them (at least one week), and keeping scores up to date in Canvas (within 2.5 weeks of submission/completion). Most importantly, **I am committed to offering you transparency, respect, consistency, constructive criticism and support.**

Lecture and Lab are challenging in their own ways

This is a 5-unit course designed for students who intend to major in a Biology discipline, and are genuinely interested in a career in biological sciences. Both lecture *and* lab are significant and neither should be taken lightly. I have no interest in wasting your time, as such, no assignment should be considered busy work. Every assignment has a bigger purpose- I am never trying to purposely fail you nor assign trick questions. In fact the opposite is true: I want to help you succeed and to do so I encourage *critical thinking*.

To maximize the potential for success, **plan to spend at least 12-16 hours per week, outside of class, actively studying, writing, reading, and/or researching.**

Before I get too much into the course, it is important to me to share the following with you:

Diversity is Science. And I love science.

I genuinely believe that diversity and collaboration lead to scientific excellence. Along with the SBCC community, I fully support and VALUE the academic, professional, and personal growth of ALL students without regard to: race, ethnicity, religion, national origin, immigration status, age, gender identity, sexual orientation, language, socioeconomic status, medical status or disability. If ever you face discrimination or hate, inside or outside the classroom, please come talk to me. I've been there- it's lonely, scary and confusing. I will and want to help you identify resources and determine a plan of action. I can also just be an ear.

SBCC approved Student Learning Outcomes (SLOs) for BIOL 103:

1. Produce cogent laboratory reports and literature reviews based on the scientific method and previously published scientific works sourced from online databases (pubmed.gov, google scholar).
2. Accurately describe the processes of the Central Dogma of Molecular Biology, how gene expression is regulated and how mutations affect the products of gene expression.
3. Explain the mechanisms of various molecular biology lab techniques and how they enable scientists to manipulate and understand gene expression, traits and function in organisms.
4. Describe mechanisms and significance of various cell processes and molecular pathways, including: glucose metabolism, molecular transport, cell communication, cell growth, mitosis, meiosis and cell death.

Course Pre-requisites:

- CHEM 155 or 104; ENG 110 or 110H; MATH 107, 110C, 137, SS 110C or equivalent based on SBCC's Assessment Center placement via multiple measures.
- In addition to these pre-requisites, I *very strongly* recommend that you previously completed BIOL 101 or BIOL 102 with a grade of C or better.

Dr. B.'s Office Hours Information

Office hours aren't *just* for seeking help with Bio103 content. Drop by just to say hey and let's talk about life- hobbies, travel, music, podcasts, TV, food, goals, animals transferring, or nerdy cool science stuffs. If ever you face discrimination or hate, inside or outside the classroom, please come talk to me. I've been there- it's lonely, scary and confusing.

Office Location: EBS 314 (next door to our lab).

E-mail info: jabetancourt1@pipeline.sbcc.edu Please do not message from Canvas- I do not check that inbox very frequently, and I don't want you to think I'm ignoring you. You're best best is to email me from *your* pipeline email address (in Gmail) to mine.

Familiarize yourself with the "Email Policy" (scroll down) *before* sending an email. An office hours appointment is best when a response requires more than 10 minutes of time.

Office Hours: Open for Walk-ins as individuals or teams, unless otherwise noted (see schedule). If you require a one-on-one meeting, please email me before hand so that I can ensure your privacy.

*If none of these times work for you, I will to try and find a different day/time- though I cannot guarantee this.

Monday	Tuesday	Thursday	Friday
10:45a - 12:45p	*	*	11:30a-12:30p zoom, (See link below) To book, email Dr.B. by Wednesday.

* On these lab days, I will hang around *up to* an additional 30 minutes, after the last group has checked out for the day or until 2:50pm, whichever comes first. Lab day office hours are for students in *that* day's lab. For example, if everyone on Tuesday is done at 1:30pm, I will hold office hours until 2:00pm that day for people in the Tuesday lab.

After you have a confirmed meeting time with Dr. B., Click here:

Bio 103 Tutors

A summary of the info below can be found on this single Page: All Semester Info: Tutor Info and Schedules

You have some really great tutors this semester - I am so excited that you have them as a resource. Form good study habits early- start attending tutoring as soon as they begin and attend at least one session per week.

Tutor	Email address

Check Tutor Page for schedules and locations.

CRN's with associated Discussion and Lab sections.

Everyone attends Lecture on Tues AND Thurs at 8:00am in EBS 309, regardless of CRN. The table below indicates which CRN is association with which DQ and lab sections.

If you are enrolled in <i>this CRN</i>	Then you attend this <i>MONDAY</i> discussion in EBS 201	and attend <i>LAB this day</i> in EBS 313
30942	9:30a-10:40a	Tues 9:40a-2:20p
40189	1:00p - 2:10p	
40502	9:30a-10:40a	Thurs 9:40a-2:20p
41217	1:00p - 2:10p	

Course Format:

Lecture 650 points = exams (400), discussion (120) and literature review (130)

General information-

- Tuesdays AND Thursdays 8:00am – 9:20am in EBS 309. Arrive on-time and stay for the entire class. If you don't think you will be able to attend >80% of the live lectures, it is in your best interest to take this course when you can.
- Lectures will incorporate slides, annotations on slides via tablet/stylus, animations, and videos. They will NOT be available as recordings.
- Learning objectives/goals of each lecture are provided at the beginning of each lecture. Collectively, these serve as exam study guides
- Students are responsible for all information and announcements disseminated by the instructor during class and in resources provided. Note: a small portion of information is *only* delivered during lecture and *not* on Canvas.
- *For more information about Lecture Expectations, visit the page: Week 0: Expectations for LECTURE*

Exam information-

- **Four exams:** There will be *three midterms and one final*. Exams are cumulative, with an emphasis on content presented since the previous exam. Exams later in the semester (#3-4) are worth more points. Exam format includes any of the following: multiple choice, true/false, fill-ins, short answers, matching, labeling and/or drawings. Exams will be held in-person, unless otherwise noted. Keys are posted (on Canvas) for all exams, except the final.
- **DSPS Extra time:** If you are a DSPS student, you will be provided with the appropriate amount of time/support as indicated by your accommodations. You must request DSPS accommodation *one week in advance* and the exam must be booked for the same day as the schedule, and must begin when DSPS opens.
- **No Make-ups or Take-earlys:** There are no exceptions to this so please confirm that you are able to attend/complete all scheduled exams. (See lecture and lab schedules below for dates.)
- **Proctorio:** Online exams (if applicable) will be electronically proctored by Proctorio.
- In the event a natural disaster, national crisis or other unexpected circumstance results in campus closure or regional Canvas shutdowns, and/or prohibits an exam from taking place in SB county, your other three exams will be weighted and adjusted to account for the 4th exam not being completed.

Literature review information-

- **What is a "lit review"?** A fantastic opportunity to use content you have recently learned in BIOL 103 and apply it to understanding real world topics! Independently, or as a team

of 2-3, you will complete a thorough review on a recent/hot research topic in Cell or Molecular Biology. Specific assignment and formatting requirements, and projects submitted by former students will be posted on Canvas.

- **This project is collectively worth 130 total points and includes:**
 - *Written components:* A timeline to-do list with identified person(s) responsible, a detailed outline of the written draft, a completed draft to be peer reviewed, and a final draft (3000-4500 words)
 - *Peer reviews:* Each team will be assigned to review and critique another team's completed draft.
 - *Oral component:* Each team will prepare a seminar using a presentation application like powerpoint, google slides (or equivalents). Presentations will be assessed according to a specific rubric.
- **Late submission** Although late submissions for the written portions of the assignment are allowed, they are strongly discouraged. Please review the "Late Submission of Assignments" section of the syllabus.

Discussion (DQ) information-

- **What is a "DQ" set? DQ = Discussion Questions.** Each week, you will be assigned a set of discussion/study questions. They will be posted on Canvas early in the week and are due the following week at 11pm (unless otherwise indicated), i.e. you'll have approx. 6-7 days to work on, complete and submit the set. Consider them weekly review sessions. A weekly set of questions enables you to actively engage with the course material rather than only passively listening during lecture. It's a way to test your understanding and serves as a good study guide.
- **What happens at discussion?** The night before, students will have submitted the completed question set to Canvas. During discussion, students will attend the Discussion section and share/collaborate their knowledge with peers, practice communicating scientifically concise but detailed answers, and obtain clarifications. Students must attend the section they are officially enrolled in. These sections will NOT be recorded, so it is imperative you make your best effort to attend.
- **Point distribution:** There will be 12-14 DQ sets provided per semester. Each set is worth 6-10 points (a few may be worth >10 points), depending on the set. You may score up to a maximum of 120 points for the semester. The point break down for each set will be within the following point ranges:
 - 0-4 points: completion and on-time submission
 - 0-6 points: correctness- 1-2 questions graded at random from Canvas submission
 - 0-2 points: participation in group work AT discussion
- **Opportunity to score 100%:** Life gets hectic sometimes , people get ill, people forget, people fall asleep on accident...It's all good though. If you miss a submission deadline or a discussion section, you can definitely recover, and still earn 120/120 for discussion points, but since there are extra DQs offered throughout the semester, LATE DQ's are NOT ACCEPTED. Please refrain from sending them to me.

- **DQ “Page” in Weekly Module (Canvas):** There will be a DQ “Page” in the Canvas module that corresponds to the DQ set that is due at the start of the week, and the new DQ that you should work on during the current week.
- *For more information about DQ Expectations, please visit the page: Week 0: Expectations for DQs and DISCUSSION*

Laboratory 350 points: in-class activities (140), lab reports/proposal (210)

- **Attendance:** To maintain your enrollment position in the course, make sure to attend the first two weeks, AND make sure not to miss more than one lab session between weeks 3-15. Failure to comply will result in being dropped from the course, unable to re-enroll, and/or becoming ineligible to pass the course. You must attend the lab you are enrolled in (See top of syllabus for CRN and corresponding lab day/time).
- **Excused vs unexcused Absences:** Regardless of the reason, a student is only allowed one absence between weeks 3-15 (attendance is mandatory during weeks 1-2). Left to the discretion of the instructor, an absence may be deemed excusable. This means, the student *may* be eligible to make up some/all of the work missed and/or may be able to attend a different lab session later that week, though this is a case by case situation. There will not be an opportunity to make up work or attend a later lab session if the absence is *unexcused*, and you may be asked to continue on projects independently (rather than on a team).
- **Arrive prepared:** Bring relevant materials such as protocols, worksheets AND notes. Please complete any pre-lab assignments before the start of your lab, since these often are used in group discussions and share-outs.
- **During lab:** Each week you may be asked to do any of the following tasks: observe or perform biological experiments, predict/analyze data, write/revise lab reports, conduct peer reviews, read/present scientific literature, debate bioethical issues, construct formal scientific figures, and more. Most work is to be completed in small groups of 2-4 (TBD by instructor). During downtime, you may have the opportunity to study/work on Bio103 assignments; other coursework is prohibited. Each week will consist of an activity worth 5-15 points. Students can earn a maximum of 140 points, though more than 140 points will be offered to account for unexpected life circumstances.
- **Weekly Due dates:** Most lab assignments will be due the night before lab (11pm), though a few may be due before you leave the lab that day or later that night. It is the responsibility of the student to know when and how assignments are to be submitted. Activities assigned and due *during* a single lab session cannot be submitted late. There are no makeups. Thus, it is very important to show up on time for every lab!
- **Lab reports and proposal (210 points):** You will complete three written assignments/reports (in groups). Formatting requirements will be specified for each assignment. Reports are to be submitted on Canvas the night before your scheduled lab, unless otherwise noted. Although late submissions for lab reports are allowed, they are

strongly discouraged. Please review the “Late Submission of Assignments” section of the syllabus.

- *For additional information about Lab expectations , please visit the page: Week 0: Expectations for LAB*

Overall Expectations for the course

**To pass Bio103, you must pass the laboratory component with a minimum of 245 points AND the lecture component (which includes discussion points) with a minimum of 448 points.*

**To pass Bio103, you must complete and submit all major assignments for the course. This includes: exams, final literature review paper and presentation, lab reports and lab presentations.*

**Please read and refer to the syllabus often so you know how/when each assignment is to be submitted; utilize Canvas and check email regularly often so you are up to date with reminders and important announcements*

**It is your responsibility to keep track of earned points (the limitations of Canvas lead to inaccurate representations of actual course grades- more info upon request). It is advisable that you generate an excel spreadsheet to document points earned.*

**If you are taking BIO103 for the second time (or more), you may not copy/paste any portion of your lab reports, discussion sets or literature review. There is a zero tolerance for this behavior. Failure to comply will earn you a zero on the assignment and the loss of privilege to work in partners for remaining assignments.*

**Extra credit assignments are not available. I may, however, incorporate extra points into assignments and/or exams.*

**I reserve the right to modify the schedule and/or assign additional readings or videos as I see fit. I intend to follow the schedule as it is written, but flexibility is sometimes necessary when it comes to science and science learning.*

**All course sections, assignment and exam start times and deadlines are in Pacific Standard Time (PST)*

Course Materials and Online Resources

Canvas (SBCC's Online Learning Management System) and SBCC pipeline email: Please familiarize yourself with Canvas and check it often. The course syllabus, lecture slides, additional (non text-book) readings/videos, worksheets, discussion topics/questions and

important announcements will be posted here. Please **do not email me through Canvas**. Check and use your pipeline email daily. I will not open or reply to emails from addresses other than SBCC email addresses.

turnitin.com and Canvas submissions: Electronic submission through Canvas will automatically be filtered through the plagiarism website, turnitin.com. Unless otherwise instructed, no further action on your part is required. Your first submission onto Canvas is your final submission- as such please ensure you are uploading the correct version of the assignment. To avoid late penalties, submit assignments before the deadline. **TAKE A SCREEN SHOT of successful submission.**

Equipment, web applications, Tools (REQUIRED): The following must all be reliable, functional and readily accessible by the end of the first week of the semester: a computer, wifi, Google Drive, Chrome, Microsoft Office (There is a free student version available and all campus computers have this installed), a paper or electronic notebook to serve as a lab notebook, note-taking equipment.

Scientific or 4-function Calculator (REQUIRED) Graphing calculators will not be allowed in lab, lecture or on exams. Calculators are allowed for lab assignments. You may NOT use your cell phone as a calculator.

Laboratory Manual (REQUIRED): I will post lab manuals/protocols for the upcoming week by Sunday evenings (Canvas), or perhaps sooner. There is no purchase necessary.

Textbook (REQUIRED): Clark, M.A. *et al.*, *Biology*, OpenStax, 2nd ed. (2019) ISBN-10: 1947172522. **This is a free online text** <https://openstax.org/details/books/biology-2e> and can also be purchased as a physical copy if you prefer. The assigned reading will be based on this edition.

Textbook (RECOMMENDED): Alberts, B., *et al.*, *Molecular Biology of the Cell*, Garland Science, 6th ed. (2014) ISBN: 9780815344322.

**My goal is to offer FREE resources- these will be provided on lecture slides and on Canvas Pages.*

**Here are other online articles/videos I like: [Khan Academy](#), [BioNinja](#) and [YouTube](#).*

Other helpful materials (RECOMMENDED): colored pens and/or pencils, white board/markers, daily planner (hard or electronic), an annotation application like: Notability (\$9 for ipad), Doceri (ipad \$0 or windows \$5), or Microsoft One Note (\$0), [Quizlet](#) or [Anki](#) (for e-flashcards).

Course Grading

All points earned will be posted on Canvas within 2-3 weeks of submission. Course letter grades are based on the number of *POINTS earned (not percentage)*. Because I round up occasionally

throughout the semester, I do NOT round to the nearest percentage at the end of the semester- NO EXCEPTIONS. Please note that you must individually pass the lecture component AND lab component to pass the entire course.

Assignment	Points/component	Percentage of total grade
Discussion Questions Sets	120 lecture	12%
Exam 1	75 lecture	7.5%
Exam 2	75 lecture	7.5%
Exam 3	100 lecture	10%
Exam 4	150 lecture	15%
Literature Review	130 lecture	13%
Weekly Lab Assignments	140 lab	14%
Lab Reports (3)	210 lab (50, 70, 90)	21%
TOTAL	1000 points	100%

Grade Scale in points (Throughout the semester I will occasionally round up, thus I do NOT round up final points)

Letter grade	Points needed
A+	980-1000
A	930- 979.5
A-	890- 929.5
B+	870- 889.5
B	830- 869.5
B-	790- 829.5
C+	760- 789.5
C	690- 759.5
D	590- 689.5
F	0- 589.5

Email Etiquette Policy

Importantly: you MAY only email me ***directly from your SBCC pipeline account, NOT Canvas***, and it must be ***from a SBCC email address***. Due to safety issues, all emails from Non-SBCC addresses will be marked as SPAM and deleted. Thanks for your compliance. Please allow at least 24-36 hours for a response to emails during the week (Sunday 5pm-Friday 1pm). If I have not responded in 36 hours, feel free to email me again. I don't check email over the weekend as frequently as I do during the week.

As part of an effort to help you develop your professional communication skills, I am instituting a *semi-formal email etiquette policy*. At a minimum, by addressing the following prompts, your email will read professionally and respectfully, and the goal of your email will be clear. I will be able to efficiently and quickly address your question/concern.

Can your answer be found in the syllabus or other class resource?

Please make an effort to try and find the answer before emailing. If the answer is not in class resources, then proceed with writing an email. Please note that if your answer *can be* found in class resources or was part of an announcement made in class, I may not reply or may just send a link.

Does your email have a clear subject line?

Never leave the subject line blank. Additionally, be clear and concise. I will not prioritize emails with blank subject lines. Include DQ section day and/or Lab day (depending on the content of the email.)

For example- ***“Re: DQ#3 Question #4- Glycolysis, DQ W830”*** This tells me which DQ section you are in and exactly what assignment you are talking about. If you had a questions about lab, you'd alter the subject line to reflect your lab section. If asking about lecture content, include lecture # and topic

Did you include a professional “Greeting” and “Closing”?

“Dear, Hello, Hi” or simply, just my name (Dr. Betancourt, Dr. B, or Professor) will suffice. I do not go by Miss, Ms. Mrs. or Jenn/Jennifer in my professional environment. To end an email, a simple *“Thanks, Sincerely, or Best Regards, etc.”* will do.

Is your email concise? Did you use standard punctuation, correct spell/grammar?

Please keep in mind that I receive many emails from many students each day. Convey your thoughts succinctly and in an organized fashion. If your email requires you (or me) to write a long explanation, please understand that my reply may simply ask you to visit me at office hours . Always strive to present yourself in a professional, respectful and thoughtful way. No one is perfect, but a quick spell/grammar check will help minimize errors.

If you think you may have consecutive questions (i.e. you are currently working on a worksheet, or studying an intense lecture), please try writing an email draft: Create a list of numbered questions and when you are done studying/working for the day/night, then go ahead and send the email. OR better yet, bring that list of Qs to office hours.

Late Submission of Assignments

Assignments deadlines can be found on Canvas. Please be responsible in knowing when and how assignments are to be submitted. If you do not submit your assignment to Canvas ON-TIME, it likely not be eligible for points. The only assignments eligible for late submission are: Lab Reports, the Grant Proposal (if applicable) and the Final Written draft of the Literature Review. Exceptions *may* be made for valid documented excuses approved by the instructor, and some or all of the point deduction *may* be excused.

Late assignments will earn penalties, and it will likely take longer to receive your grade.

- Within 24 hours (includes sat/sun) after the deadline = 10% deduction
- Within 24-48 hours (includes sat/sun) after the deadline = 25% deduction (can use this option only once per semester)
- No submission after 48hours after the deadline = fail the course since all major assignments must be submitted to be eligible to pass, and major assignments are the only type of assignment eligible for late submission.

TO SUBMIT A LATE ASSIGNMENT (that is not eligible for being "excused"), do the following:

1) Email Dr. Betancourt, no later than 24 hours after the original deadline, but better if it is *before* the deadline, with a brief explanation (follow email etiquette policies) and statement indicating that you will be submitting the assignment late. This email should also contain an estimated day/time of late submission. Await email correspondence from Dr. B. and reply ASAP.

AND

2) When the assignment is complete (and after you have completed step one), upload the late assignment exactly in the manner described by Dr. B. Failure to comply may result in the assignment being considered as "unsubmitted" and may result in a 0.

TO BE CONSIDERED FOR EXCUSED LATE SUBMISSION OR LAB ABSENCES:

Follow the same rules as above. However, ALSO provide and attach valid/official written documentation (take a photo, upload into email) in the first email you send Dr.B. This email must be sent within 24 hours of the deadline or absence. Upon receiving both correspondence and documentation, I will determine whether the absence/late submission is to be excused, so please await and reply ASAP to email correspondence from Dr. B.

Academic Integrity

It is your responsibility to read, review and understand SBCC's policies and definitions of Academic Integrity and Misconduct. If you have questions, please inquire before it is too late. All assignments you submit must be entirely *your own* original work and cannot be copy/pasted from *any* previous class. The points below are a summary, but not exclusive. I urge you to read the SBCC AP5550

- I maintain a ZERO TOLERANCE policy toward academic misconduct of any kind. This includes but is not limited to academic dishonesty, cheating, fabrication, and/or plagiarism. DO NOT DO IT.
- Unless it is an established group assignment, you must never use anybody else's work, even as a template (this includes web sources). You *may* collaborate with others when brainstorming, but you must individually write your own assignments in your own words.
- If you are re-taking this course, you must reword previous documents. **I do not allow copy/pasting.**
- Never give your work to another student to use, and never take the work of others as your own. These are both examples of academic misconduct.
- Everything you turn in must be stated in your own words even if you cite the source. Changing a few words or reorganizing a sentence from a book, journal article, AI tool, or internet site is NOT saying it in your own words, and thus is plagiarism. It is not suffice to put work in quotes.
- Sources of information used must be properly cited- (See Reference guidelines)
- **Students who commit any degree of academic misconduct: will receive a 0 on the assignment, may be reported to the Dean, may lose late submission and group work privileges, will become ineligible for extra credit of any kind (included points already earned), and may be subject to a letter grade drop in overall course grade, or subject to failure of the course. NO EXCEPTIONS!**

Add/Drop Deadlines

It is your responsibility to familiarize yourself with the add/drop deadlines. Take necessary action with the office of Admissions and Records when necessary, so as to not adversely affect your academic record. Please inform me if you are withdrawing so I can make adjustments.

Sept 9: final day to drop the course without a "W" but still receive a refund;

Sept 10: final day to drop the course without a "W" and **no refund**;

Oct 27: deadline to withdraw from the course with a "W" (and no refund).

Dec8: deadline to petition for a grade of pass/no pass; requires one-on-one meeting with Dr.B *prior* to approval.

Students that qualify (or feel they qualify) for classroom accommodations- DSPS

I welcome and invite all diverse learning abilities into our science community. If you have, or think you might have a disability that impacts your educational experience in this class, please contact Disability Services and Programs for Students (DSPS) to determine your eligibility for accommodations. DSPS coordinates all academic accommodations for students with documented disabilities at Santa Barbara City College.

The DSPS office is located in the Student Services (SS) Building, Room 162. Their phone number is 805-730-4164 and email address is dspshelp@sbcc.edu

If you are already registered with DSPS, please submit your accommodation requests via the **'DSPS Online Services Student Portal'** as soon as possible. This needs to be done each semester. Once submitted and confirmed, please visit with me about your specific accommodations, preferably by the end of the third week of the semester. I just want to get to know you better and understand how I can potentially be more accommodating to your success in this course.

For testing reservations, complete forms at least 1 week before the exam, request to take the exam on the same day as the rest of the class, and as close to 8:00am as possible (i.e. schedule the exam for when DSPS opens).

Title IX: Sexual misconduct and gender discrimination are not tolerated in this course or at SBCC.

Title IX is the law that prohibits sexual misconduct and gender discrimination. Please contact SBCC's Title IX Coordinator, Linda Esparza Dozer Imesparza@pipeline.sbcc.edu, 805.730.4303, if you have questions or concerns about an incident, about reporting procedures, about available resources for survivors, or if you just want to talk.

A few final words from me to you:

I genuinely look forward to working with you this semester. If you are reading this, there's a good chance you read most if not all the syllabus- great job! My goal as an instructor is to help you discover the fascinating world of cell/molecular biology and to help you realize that you are an important member of the Biology Community. I will push you because I believe in you. **I truly do care and will help any way that is equitable, reasonable and appropriate.** I invite you to get to know me as I would truly like to get to know you too. Visit me at Office hours within the first two weeks and see for yourself. Talk to me during lab downtime, about new research or cool podcasts you've listened to! I know this course can be overwhelming at times, but time management and seeking help early-on is key. This is YOUR education and YOUR LIFE- get involved, take charge and go for it. Stay Gritty!

Course Schedule

Due dates for DQ Sets are not listed here, but in general, they are due weekly (the night before discussion section).

LAB in grey; weekly lab assignments are not listed here, but in general, they are due weekly (the night before your official lab).

LITERATURE REVIEW in pink

EXAMS in green = all cumulative, with emphasis on content from previous exam. In person, 8am.

HOLIDAYS in yellow = no class, deadlines, tutor sessions or office hours

Readings for lecture are from OpenStax, but feel free to use the same free online resources I do: Khan Academy, Bio Ninja and others posted on lecture slides.

BIOLOGY 103- Lecture Topics, Lab Activities and Assignments				
Week	Day/Date	Topic/ Activity	Accompanied resources: OpenStax <i>Biology</i> , and refer to add'tl resources on slides. Read BEFORE class/lab	Big reminders
1	M 08/28	Meet n Greet: Intro to Discussion format, Q/A. Attend sections associated with CRN	<ul style="list-style-type: none"> • Syllabus • Week 0: Expectations for DQ and Discussion 	Attend or get dropped. No exceptions
	T 08/29	Welcome to Lecture: Intro to Lecture format, Canvas Tour, Q/A	<ul style="list-style-type: none"> • Syllabus • All files in Week 0 module. • Bring notes and Q's 	Attend (or get dropped)
	R 08/31	Lecture 1: Universal Features of the Cell, Model organisms	Ch 4: Cell Structure	Attend (or get dropped)

	LAB	<p>1. Welcome to Lab: Intro to Lab, Canvas Tour, Q/A</p> <p>2. Mol-Bio Basics: Solutions and Dilutions (Lab Math), pipettes.</p> <p>3. Mol-Bio Bootcamp (Part I): Determining concentration of samples using Spectrophotometry</p>	<p>Week 0: Expectations for LAB</p> <p>Week 1: Lab "Page" for additional things to do</p>	Attend (or get dropped)
2	M 09/04	<p>DQ Set 1 is due Sunday evening (09/03 by 11pm). See <i>Week 2: DQ Info and Docs (in the Week 2 Module)</i> for additional info NO IN-PERSON MEETING b/c LABOR DAY</p> <p>From this point forward, the remaining schedule will not include DQ info. Expect to complete and submit a set each Sunday evening <u>and</u> attend DQ on Mondays. All info, links for DQs will be found on the Weekly DQ "Page".</p>		
	T 09/05	Lecture 2: Chemical Bonds, Properties of H ₂ O	Ch 2: The Chemical Foundation of Life	Attend (or get dropped)
	R 09/07	Lecture 3: Overview of Macromolecules & Functional groups	Ch 3: Biological Macromolecules	Attend (or get dropped)
	LAB	1. Mol-Bio Bootcamp (Part II): Restriction Digest and Gel Electrophoresis	Week 2: Lab Page files	Attend (or get dropped)
3	T 09/12	<p><i>finish Lecture 3 if necessary</i></p> <p>Lecture 4: Amino acids to polypeptides- structure & function;</p>	Ch 3.4: Proteins	
	R 09/14	Lecture 5: Enzymes (Part 1) - Structure, Function	<p>Ch 6.2: Potential, Kinetic, Free and Activation Energy</p> <p>Ch 6.5: Enzymes</p>	
	LAB	Thin Layer Chromatography (Part1):	Week 3: Lab Page files	

		Intro, experiment, data collection	
4	T 09/19	<i>finish Lecture 5 if necessary</i> Lecture 6: Enzymes (Part 2)- Regulation	Ch 6.5: Enzymes
	R 09/21	Lecture 7: Lipids, fats & the phospholipid bilayer	Ch 3.3: Lipids Ch 5: Intro and 5.1: Components and Structure
	LAB	Thin Layer Chromatography (Part 2): Team meetings on data analysis	Week 4: Lab Page files
5	T 09/26	Lecture 8: Molecular transport across membranes	Ch 5.2-5.4: Passive, Active and Bulk Transport
	R 09/28	Lecture 9: Cell communication and adhesion <i>(finish up Lecture 9 as online video, if necessary)</i>	Ch 4.5-4.6: Cytoskeleton and connections between cells. Ch 9: Cell Communication
	LAB	Thin Layer Chromatography (Part 3): Interactive Writing Workshop and open lab office hours.	Week 5: Lab Page files TLC complete draft (#1) is due.
6	T 10/03	Lecture 10: Sugars and Carbs; Overview of Glucose Metabolism - <i>(presented live or online TBD)</i>	Ch 3.2: Carbohydrates
	R 10/05	EXAM #1- Lecture #1-9, major emphasis on Lec 4-9 (75 points), Exam will begin at 8am	

	LAB	Western Blot Analysis of Rubisco expression (Part 1): Overview, Predictions and Preparation of Protein Lysates	Week 6: Lab Page Files	
7	T 10/10	Lecture 11: Glycolysis; <i>Aerobic</i> Glucose Metabolism- Pyruvate Oxidation	Ch 7: Intro, 7.1-7.2: Energy in living systems; Glycolysis	
	R 10/12	<i>finish Lec 11- PyrOx, if necessary.</i> Lecture 12: Aerobic Glucose Metabolism- Citric Acid Cycle	Ch 7.3: Oxidation of Pyruvate and the Citric Acid Cycle	
	LAB	Western Blot (Part 2): SDS-PAGE and Transfer to NC membrane	Week 7: Lab Page Files	TLC FINAL Draft DUE
8	T 10/17	<i>finish Lec 12- CAC, if necessary.</i> Lecture 13: Oxidative Phosphorylation and Other Metabolic Mechanisms	Ch 7.5-7.7: Oxidative Phosphorylation; Metabolism without Oxygen; Connections with [other molecular] Pathways; Regulation of Cell Respiration	
	R 10/19	<i>finish Lecture 13- other metabolisms</i> start Lecture 14: Nucleotides to nucleic acids- structure and function	Ch 3.5: Nucleic Acids Ch 14: Intro and 14.1-14.2: Historical Basis of Understanding, DNA Structure and Sequencing	
	LAB	Western Blot (Part 3): Ponceau, Immunoblot, Analyze results	Week 8: Lab Page Files	
9	T 10/24	EXAM #2- cumulative, but emphasis on Lectures 10-13 (75 points). Exam begins at 8am		

	R 10/26	Lecture 15 (Part 1): DNA scientists- structure, (<i>start Part 2, if time</i>)	<i>finish lecture 14 (online) if necessary.</i> Ch 14.3: Basis of DNA Replication (and review 14.1-14.2)	
	LAB	Western Blot (Part 4): Team meetings on data analysis	Week 9: Lab Page Files	WB Figures, Results and Discussion - DUE
10	T 10/31	Lecture 15 (Part 2): DNA scientists- inheritance and replication	Ch 14.3: Basis of DNA Replication (and review 14.1-14.2)	
	R 11/02	Lecture 16: DNA Replication (Central Dogma I)	Ch 14.4-14.5: DNA Replication in Prokaryotes and Eukaryotes	
	LAB	Gene Editing (Part 1): Intro to CRISPR and Bioethics debate.	Week 10: Lab Page Files	WB FINAL Draft DUE
11	T 11/07	Lecture 17 (Part 1): DNA Mutations	Ch 14.6: DNA Repair	
	R 11/09	Lecture 17 (Part 2): DNA Repair	Ch 14.6: DNA Repair	
	LAB	Gene Editing (Part 2): CRISPR Transformation, Predictions, PCR planning	Week 11: Lab Page Files	
12	T 11/13	Lecture 18: Polymerase Chain Reaction and Application	Ch 17.1: Biotechnology	
	R 11/15	Lecture 19: Transcription and mRNA processing (Central Dogma II) <i>(finish up Lecture 19 as online video, if necessary)</i>	Ch 15.1 – 15.4: The Genetic Code; Transcription (Proks and Euks); mRNA Processing (Euks)	

	LAB	Gene Editing (Part 3): Analysis of CRIPSR efficiency, DNA extraction, PCR set up	Week 12: Lab Page Files	
13	T 11/21	EXAM #3- emphasis on lectures 14-18 (100 points). Exam begins at 8am.		
	R 11/23	NO CLASS- THANKSGIVING HOLIDAY, but at some point WATCH LECTURE 20: TRANSLATION BEFORE 10/26. (Reading for Lec 20 = Ch 15.5: Ribosomes and Protein Synthesis)		
	LAB	HAPPY THANKSGIVING. NO in-person LAB THIS ENTIRE WEEK. nom nom nom		
14	T 11/28	Lecture 21: Prokaryotic Gene Regulation	Ch 16: Intro and 16.1-16.2: Regulation of Gene Expression; Prokaryotic Gene Regulation	
	W 11/29	LIT REVIEW FINAL DRAFT DUE		
	R 11/30	Lecture 22: Eukaryotic Gene Regulation (start Lec 23 if time)	Ch 16.3 – 16.7: Eukaryotic Gene Regulation; Cancer Gene Regulation	
	LAB	Gene Editing (Part 4): Gel Analysis of PCR products, open lab office hours	Week 14: Lab Page Files	CRISPR - Data Check-in
15	T 12/05	Lecture 23: Cell Cycle, emphasis on Mitosis Lecture 24: Gametogenesis and Nondisjunction (start if time)	Ch 10: Cell Reproduction Ch 11: Meiosis and Sexual Reproduction, and Ch 13.2- Chromosomal Basis of Inherited Disorders	
	R 12/07	Lecture 24: Gametogenesis and Nondisjunction Lecture 25: Overview of Cell Death (if time)	Ch 11: Meiosis and Sexual Reproduction, and Ch 13.2- Chromosomal Basis of Inherited Disorders Ch 9: Response to the signal, and Ch 10.4: Cancer and the Cell Cycle	

	LAB	LITERATURE REVIEW - ORAL PRESENTATIONS- POTLUCK PARTY (Slides due the night before lab)	CRISPR Report FINAL Draft DUE
16	R 12/12	EXAM #4- CUMULATIVE, with (~65-75%) emphasis on Lec 19 (Transcription) thru end of semester; Exam begins at 8am	