COURSE BC 353 SYLLABUS

INSTRUCTOR INFORMATION
Instructor: Paul Laybourn, Ph.D., Professor of Biochemistry and Molecular Biology
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Phone: 970-491-5100

QR CODE AND LINK TO CSU POLICIES AND RESOURCES
- Short link: https://col.st/2FA2g

CANVAS INFORMATION AND TECHNICAL SUPPORT
Canvas is where the course content, grades, and communication will reside for this course.
- Login: canvas.colostate.edu
- CSU Passport to Canvas Course for those new to Canvas
- Support: canvas.colostate.edu/support
- For passwords or any other computer-related technical support, contact the Central IT Technical Support Help Desk.
- Voice: (970) 491-7276
- Email: help@colostate.edu
- For info on using browsers, apps, and third-party tools with Canvas see Student Support Canvas.
- Technical Support and Requirements page

COURSE DESCRIPTION
Biochemistry is the chemical and molecular underpinnings of how and why life (cells and organisms) works. Pre-Health Genetics will focus on the structure and function of macromolecules built from nucleotides and the cellular processes based on nucleic acids. Until we invent cameras to record the processes firsthand, understanding biochemistry means interpreting data providing indirect evidence for how things work.

Students will learn core concepts and definitions in molecular genetics. Understanding and critical thinking are most important and lasting but knowing a certain amount of content knowledge and learning the biochemistry “language” is required for hanging that understanding on.

Students will gain an “appreciation” for the field of molecular genetics. I hope you come away from this class thinking that molecular genetics is cool and excited to learn more and in greater depth. This course will only give you the tip of the iceberg, but I hope it will provide a springboard for delving into your future areas of interest in more detail.

COURSE PREREQUISITES AND COREQUISITES
BC 351
COURSE GOALS

Upon the completion of BC 353, a successful student will be able to:

- Apply and advocate for the centrality of biochemical principles to molecular genetics;
- Illustrate and analyze molecular genetic processes in terms of biochemical principles - the chemical properties of the molecular components (parts) and the biophysical driving forces;
- Name, categorize and explain the composition and structure of nucleic acids in biochemical terms;
- Define, outline and sketch DNA-based technology and the structure of genes and chromosomes;
- Describe, illustrate and differentiate the protein and nucleic acid components of DNA and RNA metabolism (DNA repair, etc. and RNA transcription, translation, etc.)
- Restate, examine and interpret the various aspects of the regulation of gene expression in prokaryotic and eukaryotic cells;
- Review, inform, demonstrate and justify how all the molecular genetic core concepts and big ideas inform the current understanding of cancer biology.

REQUIRED TEXTS


The course textbook is available through the CSU Bookstore’s Inclusive Access Program in partnership with Unizin Engage. You have immediate access to the online e-text by clicking on the “Manage eResources” link within the course menu in the BC 353 course. Please note, there is a cost for the e-text. The bookstore will charge your student account for the cost of the e-text after the Add/Drop date, August 28, 2023. You must “opt-out” of the etextbook before the Add/Drop date to avoid bookstore charges. Please look for emails from the “CSU bookstore” about accessing the etextbook and ‘opting out’, as well, as charges to your student account. These emails will be sent to your official CSU email address. To opt out, follow the link in the emails or click on the Manage eResources tab in Canvas. This letter is also posted under the Course Information Module on the BC 353 Canvas course. Once you choose to “opt-out,” you will no longer be allowed to access the e-text in Canvas.

OTHER REQUIRED AND SUPPLEMENTAL MATERIALS

Assignments

How will you know that you have learned and understood the BC 353 core concepts and ideas? What will your grade be based upon?

1. **12 Module Quizzes** – 50 points total
   
The quizzes will be administered on Canvas. They are all available starting August 21 or the same day as the previous exam (for example Module 5-7 Quizzes are available starting September 11) but will be due (must be completed) each Sunday night at 11:29 PM. There will be 12 quizzes and you will be allowed two attempts on each and will receive your highest score.

2. **4 Exams** – 400 points total
   
There will be four exams worth 100 points apiece. The exams will be administered on Canvas, as well. Each exam will be available for a five-day period (for example exam 1 is available starting Monday September 11 at 12:01 AM and ending Friday September 15 at 11:59 PM. You will have two hours to complete the matching and multiple-choice portions of the exams. Exams will consist of two matching (10 points each), ten multiple choice (4 points each) and ten free response questions (4 points each). The
exams will only cover what I talk about in class and emphasize in the study guides and quizzes. The matching and multiple-choice portions of the exams are closed notes, text, Internet, etc. and will be answered online. The free response portion of the exams will be answered offline on paper and will be due by email submission to me in two days after the matching and multiple-choice portion is due. Please scan your answers using the free app TurboScan or equivalent as a single pdf.

3. Discussion Board Posts (Coffee Shop) and Weekly Questions Surveys
Submission of Discussion Board posts under the pinned Coffee Shop threads and completing the Weekly Questions Surveys are not required. However, each Discussion Board post and survey completion is worth 1 extra credit point.

Course Materials
I will provide materials on Canvas to help you grasp my organization of the course content. These materials define what concepts I want you to know and understand. The materials also aid your studying for exams.
1. Textbook pages and supplemental article reading
2. Module outlines
3. Lecture slides for taking notes
4. Module study guides (and answers)
5. Lecture Recordings

ACADEMIC INTEGRITY Policy
By registering for this class, you enter into a contract between each student (you) and the instructor (me) constituting an agreement on our respective roles in gaining the knowledge and understanding of cell biology and earning the grade that you desire. As the instructors, our role is to organize and present the material and stimulate, facilitate and guide you through learning and understanding the core concepts in eukaryotic cell biology. As the student, your role is to complete the course materials. If you wish to do well in this course (earn an A or B), I strongly suggest that you watch all the recordings, complete all the assignments, use the study guides (answer the questions to the best of your ability on your own, then check your answers against the answers we post), form study groups, schedule office hours with the instructors to clarify concepts, and study by practicing rather than merely looking over your notes (please ask us if you do not know what this means).

This course will adhere to the CSU Academic Integrity Policies and Guiding Principles as found in the General Catalog and the Student Conduct Code.

Academic integrity is conceptualized as doing and taking credit for one’s own work. Violations of the university’s academic integrity standards include, but are not limited to:

- Cheating—including using unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work or engaging in any behavior specifically prohibited by the faculty member.
- Plagiarism—including the copying of language, structure, ideas, or thoughts of another, and representing them as one’s own without proper acknowledgment.
• Unauthorized Possession or Disposition of Academic Materials—includes the unauthorized selling or purchasing of examinations or other academic work; stealing another student’s work; unauthorized entry to or use of material in a computer file; and using information from or possessing exams that an instructor did not authorize for release to students.
• Falsification—includes any untruth, either verbal or written, in one’s academic work.
• Facilitation—includes knowingly assisting another to commit an act of academic misconduct.
• The use of online “homework helper” sites including, but not limited to, Chegg, NoteHall, Quizlet, and Koofers is not permitted during exams in this course. Please reach out to the instructor or one of the LAs to discuss if a specific service you are thinking about using for this course is acceptable.

Use of these types of resources during exams will be considered receiving unauthorized assistance and, therefore, a violation of the student conduct code. Using them may result, at the discretion of the instructor, in a zero for the course, assignment, quiz, or exam. All incidents of this type will be referred to the CSU Student Resolution Center and may be subject to additional University disciplinary action.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

CSU HONOR PLEDGE

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course. While you will not be required to affirm the honor pledge, you will be asked to affirm the following statement at the start of your exams:

"I have not given, received, or used any unauthorized assistance."

Further information about Academic Integrity is available at CSU’s Practicing Academic Integrity.

UNIVERSAL DESIGN FOR LEARNING/ACCOMMODATION OF NEEDS

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions should be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact your instructor to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from The Student Disability Center (SDC) may be required before any accommodation is provided.

The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations
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may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student’s eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodation’s specialist in the SDC.

COURSE PRESENTATION AND PROCEDURES

Organization of content: 1 module/half week comprised of readings, recordings, learning activities and quizzes. | Students should complete all tasks in each module before moving on.

SUGGESTED STUDY METHODS

How to Study

View the lectures prepared (know something about what I will talk about) having read the textbook pages and supplemental articles and looked over the lecture outlines and the study guide questions for the lecture. Review lecture notes and the study guide questions and attempt to answer these questions. If you do not have a good understanding of the questions and how to answer them ask about them by email or by posting your question on the Canvas Discussion Board (Coffee Shops). Use the quizzes as practice for the exams. Study your notes including key terms and concepts, and then take the quiz the first time without your notes. If you do not do as well as you would like, review your notes again and take the quiz a second time with your notes and book open. Use a similar approach with the practice exams. Finally, I strongly suggest that you practice drawing out the molecular genetic processes on a white board multiple times rather than just looking over them to study them. You will find the information sticks in your memory much more quickly and you will recognize gaps in your understanding more readily. Using this approach in a study group is even more effective.

Online education requires skills and habits that may be less essential in traditional courses. To be successful in your online course you will need:

- Space—Establish a comfortable and well-organized physical workplace.
BC 353: Pre-Health Genetics

- **Time management skills**—Set personal study and "classroom" time as you would do for a traditional course.
- **Organization skills**—Print out all class material (modules, PowerPoints, assignments, additional resources, and any work you generate) and keep everything in a single location. Maintain electronic backups of all class materials.
- **Communication skills**—Demonstrate a willingness to interact with your instructor and classmates through email, phone calls, discussion boards, and active participation in all class activities.
- **Initiative**—Seek help from your instructor and classmates, ask questions as they arise on the Canvas Discussion Board. Coffee shops.
- **Discipline**—Pace yourself, complete all activities and assignments before the due date, follow through on all class requirements to completion. Start studying immediately after an exam for the next exam.

The more closely you adhere to the recommendations above the greater your chances of having a successful semester and a rewarding online experience.

**GRADING**

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in the Course Schedule. With that said, I take my role as your instructor very seriously, and, in fact, I care about how well you do in this course and that you have a satisfying, rewarding experience.

Each of the 4 exams in BC 353 will be worth 100 points each (400 total). Each of the 12 quizzes will be worth 5 to 7 points but their value in your final grade will be scaled to 50 points total possible (for example, 60 points/1.2 = 50 points possible). If you achieve the following point totals for BC 353 you will be assured of the minimum letter grade shown:

<table>
<thead>
<tr>
<th>Points Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>405-450</td>
<td>A</td>
</tr>
<tr>
<td>360-404</td>
<td>B</td>
</tr>
<tr>
<td>315-359</td>
<td>C</td>
</tr>
<tr>
<td>270-314</td>
<td>D</td>
</tr>
<tr>
<td>&lt;270</td>
<td>F</td>
</tr>
</tbody>
</table>

405-450 (≥90%)  A  
360-404 (80-90%) B  
315-359 (70-80%) C  
270-314 (60-70%) D  
<270 (<60%)     F  

Each exam will not be curved individually, but the final total points required for a course grade might be curved downward depending on the averages and distribution of points. In addition, your grade for BC 353 will be determined based on the total 450 points (combined). Students in BC 353 have averaged at least 80% of the total points possible over the past several years. Thus, there is usually no grading curve. Please note that plus/minus grading will be used.

**Missed Exams and Re-grading of Exams**

There will be no make-up exams offered. Exams or quizzes you have missed without an excuse will be graded as zero. If you have an excused absence (based on written or other verifiable evidence) from an exam or quiz, your final grade will be based on a percentage of the total possible points for the exams and quizzes you did take. Students can schedule to take an exam early with the instructor if they know they cannot take the exam at the regularly scheduled date and time. If you have questions concerning the grading of any of your exams or quizzes, the questions you want re-graded should be circled and the exam or quiz should be turned in to the instructor within one week of the date of its return to the class after grading. You must also provide a written explanation as to why you feel the question
should be re-graded. Exams will not be accepted for re-grading after this one-week period, so go over your exam carefully soon after it has been returned to you.

**QUIZ AND EXAM DETAILS**

Quizzes will consist of 10 to 12 multiple choice questions taken on Canvas. Exams will consist of matching (2 five part questions worth 10 points each), multiple choice (10 questions worth 4 points each) and two free response (2 five part questions worth 20 points each).

**GRADE DESCRIPTION**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A+</td>
<td>97.5-100%</td>
</tr>
<tr>
<td>A</td>
<td>90-97.4%</td>
</tr>
<tr>
<td>A-</td>
<td>88.8-90%</td>
</tr>
<tr>
<td>B+</td>
<td>87.5-88.7%</td>
</tr>
<tr>
<td>B</td>
<td>80-87.4%</td>
</tr>
<tr>
<td>B-</td>
<td>78.8-80%</td>
</tr>
<tr>
<td>C+</td>
<td>77.5-78.7%</td>
</tr>
<tr>
<td>C</td>
<td>70-77.4%</td>
</tr>
<tr>
<td>C-</td>
<td>60-69.9%</td>
</tr>
<tr>
<td>D</td>
<td>0-59.9%</td>
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</tbody>
</table>

**EXAM MAKE UP POLICY**

There will be no make-up exams offered. Exams or quizzes you have missed without an excuse will be graded as zero. If you have an excused absence (based on written or other verifiable evidence) from an exam or quiz, your final grade will be based on a percentage of the total possible points for the exams and quizzes you did take. Students can schedule to take an exam early with the instructor if they know they cannot take the exam during the regularly scheduled dates.

**SYSTEM, MULTIMEDIA, AND SOFTWARE REQUIREMENTS**

Having trouble with the multimedia in this course? See the solutions below. Also, it is highly recommended that you access your course via a high-speed Internet connection.

- Problems with opening PDFs? Download Adobe Reader.
- YouTube videos not playing? Download Flash Player.
- Videos not opening or playing on your Mac? Download Windows Media Components for QuickTime.
- Still having issues: Call the CSU Help Desk at 970-491-7276 or Email Help Desk Support

You must have speakers installed and working properly on your computer before beginning the course.

You may need access to Microsoft Word, PowerPoint, and/or Excel to complete assignments. If you do not have access to the Microsoft Office applications, you may use one of the following free resources that allow you to save your files with Microsoft Office file extensions (.doc, .docs, .ppt, .xls.):

- Google Apps for CSU—a free, outsourced communications suite endorsed by The University Technology Fee Advisory Board (UTFAB)
- Office 365—the full version of Microsoft Office free of charge for CSU students.
DIVERSITY AND INCLUSION

Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

PRONOUN STATEMENT

I am committed to creating a culture and climate that respects and honors people of all identities.

Like our names, pronouns (i.e., zir, they, per, she, he) reflect how we want to be respected in our identities. This is especially important for those who are Transgender, non-binary, and gender non-conforming.

We often ascribe pronouns to individuals they may or may not use. Assuming identities based on observation or stereotype can result in unintended harm by using the wrong pronouns, misgendering, or potentially outing someone. Referring to someone by pronouns they use is one way to demonstrate respect for them as a person.

Respect is included in our Principles of Community. As such, I support and encourage those who choose to share their pronouns in professional and academic spaces, including wherever names are provided, such as meeting and classroom introductions, name badges, email signatures, and course syllabi. By creating space for people who choose to share their pronouns, we foster an inclusive culture that is welcoming for all.

UNDOCUMENTED STUDENT SUPPORT

Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit Student Support Services for Undocumented, DACA & ASSET for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

FOOD INSECURITY

Any CSU student (along with faculty and staff) who is experiencing food insecurity can receive support from the Rams Against Hunger program. Services include a food pantry, a meal-swipe program, pocket pantries, and in-person assistance with navigating federal aid eligibility. The RAH page includes numerous resources as well as county, state and federal programs which are described and linked.
**TITLE IX/INTERPERSONAL VIOLENCE**

For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: [Title IX – Sexual Assault, Sexual Violence, Sexual Harassment](#).

If you feel that your rights have been compromised at CSU, several resources are available to assist:

- Student Resolution Center, 200 Lory Student Center, 491-7165
- Office of Equal Opportunity, 101 Student Services, 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the Victim Assistance Team at: 970-492-4242.

**RELIGIOUS OBSERVANCES**

CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays.

Please see [CSU’s Religious Observances Calendar](#).

Students seeking an exemption from attending class or completing assigned course work for a religious holiday will need to fill out the [Religious Accommodation Request Form](#) and turn it in to the Division of Student Affairs, located on the second level of the Administration building.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to give to their professor or course instructor.

Students are asked to turn in the request forms as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.

**CSU PRINCIPLES OF COMMUNITY**

**Inclusion:** We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

**Integrity:** We are accountable for our actions and will act ethically and honestly in all our interactions.

**Respect:** We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

**Service:** We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.
Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

STUDENT PARENTS/GUARDIANS/CAREGIVERS

CSU recognizes that student parents/guardians and caregivers face distinctive challenges in succeeding academically, and we are committed to supporting those of you who are parents to achieve course learning outcomes. If you encounter challenges in meeting course expectations – for example, fulfilling attendance and participation requirements or submitting assignments due to a child or person in your care’s illness, essential appointment, school closure, etc. – please contact your instructor as soon as possible (beforehand if feasible or as soon afterward you reasonably can if not). Work with your instructor to develop a plan for you to make up missed work. Also, please see the course syllabus for related course policies. If you need to bring your child or person you care for to class, for example because you’re nursing or planned childcare became unavailable, check with your instructor about whether you may do so if you believe it’s feasible for you to participate in class and support your child or person in your care.

Group work assignments should be designed to provide flexible approaches to participating, and all groups should develop plans that enable all members to contribute equitably. If your group encounters challenges in doing so, please reach out to your instructor to devise a solution.

Finally, know that pregnant and parenting students are guaranteed equal educational opportunities by Title IX; know your rights, the protections provided, and how to advocate for yourself.

STUDENT CASE MANAGEMENT

Student case management is available to help students with extenuating life circumstances and connect them with resources. In some cases, after you and your instructor discuss your situation, your instructor may request verifiable documentation for class absences from the SCM office if you request considerations for absences or missed coursework.

MENTAL HEALTH AND WELLNESS

CSU is a community that cares. You are not alone. CSU Health Network Mental Health Services has trained professionals who can help. Your student fees provide access to a wide range of mental health and well-being support services.

Call Mental Health Services at (970) 491-6053, and they will work together with you to find out which services are right for you.

CSU Health Network Mental Health Services
Student mental health and well-being resources

If you are concerned about a friend or peer, use Tell Someone by calling (970) 491-1350 or visiting Tell Someone to share your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams Take Care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.