2.2 PHA6852 Mammalian Molecular Biology

Credits: 3

Objectives

This course will focus on the principles of modern molecular biology and biochemistry and expand on the concepts you may have already encountered in other classes in this program. The content will also include the applications of experimental techniques and procedures routinely used in this field.

At the end of this course students should:

- Be familiar with the basic components and structure of DNA and RNA and the processes involved in prokaryotic and eukaryotic replication, recombination repair, transcription and translation
- Understand the control mechanisms of protein synthesis
- Be familiar with common analytical and experimental methods used routinely in molecular biology and biochemistry
- Understand the control mechanisms used to regulate cellular processes at a molecular level
- Understand the processes and mechanisms of mobile elements and their role in genetic disease and evolution
- Understand the principles of tumorigenesis and the molecular factors involved in tumor growth and suppression

Topics

Module 1 DNA Structure and DNA Protein Interactions
Module 2 Enzymes of DNA Metabolism
Module 3 Clones and Cloning
Module 4 Molecular Biology Techniques
Module 5 Prokaryotic and Eukaryotic DNA Replication
Module 6 Special Recombination, Transposition, Site Directed Mutagenesis
Module 7 DNA Repair Mechanisms
Module 8 Eukaryotic and Prokaryotic Transcription
Module 9 Epigenetics, DNA Methylation and Imprinting
Module 10 Eukaryotic RNA Processing
Module 11 Protein Synthesis and Translational Control
Module 12 Cancer; Growth Factors; RNA Tumor Viruses; Oncogenes; Tumor Suppressors; Chromosomal Abnormalities

Course instructor

Nancy Toffolo, Email: ntoffolo@ufl.edu, Phone: 001-352-273-6871
Required and recommended textbooks

For the latest update on required and recommended textbooks please go to the course website. Forensic Science website: http://forensicscience.ufl.edu/programs/courses/mammalian-molecular-biology/

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1. General course policies

Following are the general course policies that apply to all of the UF graduate distance education courses in Forensic Science, Pharmaceutical Chemistry, and Clinical Toxicology as listed in the content of this document. Please be aware that some courses have both written essay assignments and quizzes that are used for student evaluation while other courses have written essay assignments only. Additional means for student evaluation may be utilized by the individual instructor which will be announced on the course website within Canvas at the beginning of the semester.

For further information about your specific program of study, please see the respective website:
- Forensic Science, http://www.forensicscience.ufl.edu/
- Clinical Toxicology, http://clintox.cop.ufl.edu/

1.1 Getting started

To get started, briefly introduce yourself via the discussion board then go to the first module. Read through the course content and any required reading listed in the module introduction. Once you are familiar with the material, complete the assignment and quiz (where applicable). Do not hesitate to contact your teaching assistant (TA) or instructor at any time if you need guidance; if you are unsure about the focus of the assignment; if you have assignment questions or questions relating to the course content or quiz (where applicable). If you do not tell us you need help, we cannot help you.

1.2 Revision and Notes

As you go through the semester, keep copies of important emails, bulletins and assignments you may use for revision as these will be purged from the course at the end of the semester. We recommend you make a copy of the course modules since this will be the only access you will get to these materials. We will not be able to provide you with copies of course content once the course is removed from your account.

1.3 Course assignments

The assignments are listed on the first page of each module. You should consider the assignment questions as you read through the module content.

Required Materials: Students must comply with the UF Computer and Software Requirement. Please see the website for your respective program for further information.

1.4 Assignment deadlines and important course dates

The courses do not have a midterm or final exam. Students are evaluated continuously throughout the semester and graded according to their performance in the course module assignments and quizzes (where applicable). All modules have a written assignment and some have additionally timed quizzes that must be completed by the assignment deadline for the corresponding module.

All written assignments must be completed in your own words. Cutting and pasting from the internet is not acceptable and may be considered to be plagiarism. Failure to complete an assignment in your own words may result in you receiving a score of zero for the written assignment.

When it comes to grading, both written assignments and quizzes (where applicable) are weighted equally.

For courses that have timed quizzes: if you lose your internet connection during your quiz and scores are not recorded simply email your course instructor and they can help you.

When sending course assignments, include your name and please make sure your assignments are labeled clearly. Assignments should be submitted using the assignment drop box. If you have difficulty with the drop box email your instructor and teaching assistant - they will work with you to troubleshoot the problem. Assignment feedback will also be provided via the assignment drop box, so students should
check back to the drop box feature in the appropriate module to receive feedback and the assignment grade.

Always keep a copy of your course assignments in case you need to resend it. Also, you may want it for revision purposes later.

For Assignment deadlines - see the course calendar in Canvas.

For other important dates, consult the UF Calendar of Critical Dates and http://www.registrar.ufl.edu

1.5 Communication

Communication is a central part of all of our courses. Please take advantage of email and the discussion board whenever you have a question about the course content, assignments, quizzes (where applicable), or anything else related to the course. We want to provide all of our students with the best opportunity to learn and are always available to answer your questions. Please never hesitate to contact your course instructor and TA if you have questions.

1.5.1 Email

Course Email, not the discussion board, should always be used to contact the faculty or staff if you have a problem of a personal nature.

For technical assistance do not contact the UF HELP Desk. Please contact our IT support via email at dess@ahc.ufl.edu in addition to your course instructor.

If you are having technical problems with the course content (downloads, etc.) or you are unable to access your course interface, please contact your course instructor directly, and please do not spend hours trying to get something to work as this will only lead to frustration. We do not want any of you to be offline for any length of time. Contact us as soon as you can so we can check it out and help you. If you are experiencing difficulty with your access to course email then please email your course instructor directly via regular email. In that email, make sure you give your name and the name of your course. External instructor email addresses are listed for each course separately.

Please respond to all emails from your instructor or TA. When they email you they are usually contacting you because they want to help you.

If you have a question about your grade, a quiz (where applicable), or assignment question, please email your course instructor and they will be happy to help you.

1.5.2 Discussion forum

The course discussion board can be used to post content related questions and assignment materials when necessary. Please ask your course instructor or TA questions any time; they are here to help you. Please do not use the discussion forum to ask specific questions about your current course content, assignments etc.

It is VERY important that you read all the discussion bulletins that have been posted. The course instructor or TA will use this site to post important information relating to content or quiz (where applicable) changes, deadlines etc. Since postings can accumulate quickly, please login each day to stay on top of these postings or you may miss important information.

Please make sure you do not post assignments that are supposed to be submitted to the assignment drop box. If you accidentally do, email your course instructor right away and they will delete it for you.
1.6 Grading
Students will be graded on written assignments and module quizzes (where applicable). The final grade will be based on the student's cumulative score divided by the total number of available points. The resulting percentage will be converted to a letter grade based on the scale below.

Students will receive individual feedback on points lost on the assignments. The comments of the TA or professor can be viewed on the assignment submission page for the corresponding module.

Students can check their progress in the course by viewing their grade records via the course interface.

Canberra and Edinburgh grades will be assigned as per the policies and procedures within your university.

Grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90% or Above</td>
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<tr>
<td>A-</td>
<td>88 - 89%</td>
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<tr>
<td>B+</td>
<td>85 - 87%</td>
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<tr>
<td>B</td>
<td>80 - 84%</td>
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<tr>
<td>B-</td>
<td>78 - 79%</td>
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<tr>
<td>C+</td>
<td>75 - 77%</td>
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<tr>
<td>C</td>
<td>70 - 74%</td>
</tr>
<tr>
<td>C-</td>
<td>68 - 69%</td>
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<tr>
<td>D+</td>
<td>65 - 67%</td>
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<td>D</td>
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<td>D-</td>
<td>58 - 59%</td>
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<td>E</td>
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1.6.1 Makeup policy
Make up assignments are not usually given, but may be at the discretion of the course instructor after evaluation of the circumstances leading to the request.

1.6.2 Grade changes
Grades will be changed only when a grading error has been made. If you think an error has been made, you should email the instructor or TA as soon as possible. Your entire assignment will then be re-graded.

1.7 Instructional policies
All of our courses are part of the distance education programs at the University of Florida. Instead of traditional lecture format, the primary medium for communication between course instructors, teaching assistants and students will be via Canvas, a user-friendly web-based classroom management tool, and the World Wide Web.

1.7.1 Attendance
Students must participate in the bulletin board discussions, and are required to visit the course website daily for important updates and bulletins.
1.7.2 Class participation
Students are expected to constructively join in bulletin board discussions, with appropriate preparation; to post interesting and relevant information on the class bulletin board, and to interact professionally with their classmates.

1.7.3 Performance expectations
Students are expected to produce quality work of a standard comparable to any graduate level didactic course. Bulletin postings and discussions must be legible, constructive and appropriate. Students are required to think for themselves and will be expected to complete assignments that require the application of logic and reasoning skills when the answer may not be found in a book or the course notes.

1.7.4 Academic honesty
All students are expected to abide by the student honor code. To review the student honor code read the information on standards of ethical Conduct at: https://www.dso.ufl.edu/scrr/process/student-conduct-honor-code/

1.7.5 Plagiarism
Plagiarism includes any attempt to take credit for another person’s work. This includes quoting directly from a book or web site, without crediting the source. Sources should always be referenced or a link to the website added and, where direct quotes have been used, quotation marks must be placed around the quoted material. However, we expect more than simply cutting and pasting in a graduate level course. Students are expected to review, evaluate and comment on material they research in their own words, rather than simply copying relevant material. Your work will be graded accordingly.

1.7.6 Assignments
Each module includes an assignment that has a due date posted on the Course Calendar. While we understand that our students have other work and personal commitments, we expect every effort to be made to meet these deadlines. If for some reason, because of circumstances beyond your control, you are unable to meet an assignment deadline, students should e-mail the instructor and explain the situation in advance of the submission deadline. If no prior communication occurred, the instructor may deduct points for late submission at their discretion or as stated in the course overview and/or communicated via the discussion board. Being consistently late in submitting assignments disrupts the discussion of topics on the bulletin board and will therefore result in loss of marks for that assignment up to a full letter grade. If you email your course instructor they will work with you around the deadline.

If you have outstanding assignments at the end of the semester we will send you a follow up email as a reminder and as a means to determine your plans for completion. If you do not respond to us before the final day of classes you will be assigned a grade based on the completed assignments.

1.7.7 Student Complaint process
All complaints should initially be addressed with the course instructor to find an amenable resolution. If no resolution is possible, the program director for the respective course of study should be contacted by either the student or the course instructor. The program director for all Forensic Science programs (including Forensic DNA & Serology, Forensic Drug Chemistry, and Forensic Toxicology) is Dr. Donna Wielbo, dwielbo@ufl.edu. The program director for the Pharmaceutical Chemistry and Clinical Toxicology programs is Dr. Oliver Grundmann, grundmann@ufl.edu. If resolution of the complaint with the program director is not possible, official university policy dictates involvement of the associate dean of student affairs which will be initiated by the program director. All involved parties will then attempt a resolution.

If no resolution is possible at this stage, the University of Florida Ombudsman may be involved. More information on this process can be found here: http://www.distance.ufl.edu/student-complaint-process.
1.7.8 Incomplete grades
Under special circumstances, if a student is unable to finish a course before the end of the semester we may be able to assign an incomplete grade. An incomplete grade is a non-punitive grade assigned at the discretion of the course instructor. In our courses an incomplete grade may be assigned if 1/3rd or more of the course assignments have been completed and if the student has remained in communication with TA's and instructors throughout the course, or has made an effort to request an incomplete grade. If an incomplete grade is assigned, outstanding assignments and quizzes must be completed by the end of the next semester during which the course is offered. If the assignments are not completed in this time you will be assigned a grade based on the completed assignments.

1.7.9 Drop dates
Consult the UF Calendar of Critical Dates at UF Calendar of Critical Dates. Students must inform us that they are withdrawing from a course to ensure appropriate tuition reimbursement. Deleting yourself from the course roster does not officially withdraw you from a course.

1.8 Accommodations for students with disabilities
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodations. Students with disabilities should follow this procedure as early as possible in the semester. No retroactive accommodations can be provided.

1.9 Counseling and Student Health
Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: http://www.counseling.ufl.edu/cwc/. The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 352-392-0627 or check out the web site at: www.health.ufl.edu/shcc

Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.