BIOL 330  CELL BIOLOGY SYLLABUS  Fall 2014
Dr. Meshack Afithile  Office: WG 311  Research Laboratories: WG 306 & 364
Phone: 298-2534  Email: m-Afithile@wiu.edu
Office Hours: Wed 3-5 p.m.; Fri 2-4 p.m.

Lectures: M, W & F  1-1:50 p.m.  Waggoner Hall 378
Labs: Tue & Thur 9-11:50 a.m. and 1-3:50 p.m.  Waggoner Hall 221
Lab TA (Thursday at 9 am): Shiloh Lueschow  Office: WG 323
Lab TA (Thursday at 1 pm): Alexius Folk  Office: WG 323


Why this textbook: The textbook provide excellent and recent updated topics in Cell and Molecular Biology. Students will use this textbook for this course and for future references beyond this course.

Laboratory Manual (Departmental): Cell and Molecular Biology by Sue Hum-Musser, H. Herbert Edwards, and Meshack Afithile (2013). Hayden McNeil. Four of the labs that I conduct are not in the lab manual, and students will be given a handout the week before these labs are conducted.

Prerequisites for BIOL 330: Bot 200, Micr 200 and Zool 200 (C or better is required in all 3 courses)
Important: A background in General Chemistry is absolutely essential for Bio 330 course

Course Description: The course will emphasize cell structure including membrane lipids, DNA replication, RNA synthesis, protein synthesis, and cellular respiration.

Course Objectives
1. Understand how inheritable information is transmitted from DNA to RNA, and proteins in eukaryotic cells.
2. Learn how carbohydrates and lipids are metabolized to produce ATP that drives cellular processes.

Attendance and lab Policy: Attendance is mandatory. If a student misses class, the student is responsible for obtaining additional lecture notes from other students.

LAB attendance: Students must attend the lab section in which they are enrolled. If a student has a valid reason to miss a lab, the student may seek permission from Dr. Afithile to attend a different lab section only for that week and not on a consistent basis.

LAB: Every student must read the appropriate lab exercise or lab handout before coming to the lab. All students must come to the lab on time, participate in the lab activities, complete and submit a lab assignment as instructed by the course instructor or TA.

A quiz will be given during the first 10 minutes of the lab and it is important that all students come to the lab on time. No additional time will be given to finish a quiz for a student who is late for the lab. For some labs, students will complete a lab or take-home assignment.

Note: A student who attends a lab and fails to submit lab or take-home assignment will be counted as being absent for that particular lab and will get zero for the lab in question.

A student is allowed one unexcused and two excused absences in the lab. EXCUSED absence is when a verifiable absence has been submitted online or the absence will be considered unexcused. On the second UNEXCUSED absence or fourth total absence you will receive an automatic F in the course. It is the student’s responsibility to know the number of times that he/she has been absent in labs. There will be no make-up for the missed lab or lab quizzes. A student may ask for permission from the instructor to attend one of the other lab session(s).
Courses Requirements: Students must read lecture notes and the textbook. Notes will be made available at http://westernonline.wiu.edu through your WesternOnline account (ECOM) user ID and password. You should take additional notes during lectures, which may not be on the slides. Contact University Computer Support Services (http://www.wiu.edu/UCSS or 309 298-2704) for computing issues. Go to http://www.wiu.edu/guava to activate your account if you are using it for the first time.

LATE ARRIVALS/EARLY DEPARTURE POLICY: Students are expected to be on time for class, and can only leave the class at the end of the lecture period. Consistent late arrival or early departure from class without the permission of the Instructor may result in exclusion from this class, and hence from the entire course.

Class conduct: Students will conduct themselves with integrity, and will not be disrespectful of others or the Professor. Students are encouraged to actively participate in class and lab discussions. The time to be concerned with your grade is the first 4 weeks of class and not the last 2 weeks of the semester.

CELLULAR PHONES: Please turn off your cellular phones. If you do answer a phone that is on vibrates or silent, you must do so outside the classroom. If it happens repeatedly, you will not be allowed back in class.

ACADEMIC DISHonesty: Students enrolled at WIU agree to abide by the university Honor Code to uphold the highest standards of honesty in all phases of the University life and therefore, agree to refrain from any dishonest behavior in academics. Please read WIU policies at http://www.wiu.edu/provost/policies/.

CHEATING: This includes, but is not limited to looking at notes or at a friend's answers during a test, copying someone else's work for an assignment, doing an assignment for an absent friend, obtaining or giving specific information which will appear on a test before it is administered. In this course students may work together, but it is considered cheating for two students to have identical answers or identical print-outs regardless of whether they have worked together or not. Students must answer questions in their own words. For the lab assignments, each student must type and print out his/her own work. Cheating will result in 0 points for the exam, lab quiz or assignments.

PLAGIARISM: Representing someone else's work as your own constitutes plagiarism. If you include someone else's exact words, use quotation marks and cite the source. However, in scientific writing you should avoid direct quotes almost entirely. Paraphrase someone else's writing instead of quoting it. If you paraphrase someone else's ideas, cite the source.

Keep in mind, simply altering a single word or two of someone else's writing and keeping the rest of the sentence essentially the same is still plagiarism, even if you cite the source!

If for any of the assignment questions you hand in an answer that is essentially or entirely a word-for-word re-write of sentences in the textbook or research article, points will be deducted for plagiarism. Essays that contain plagiarized portions will receive an automatic failing grade and will be referred to the University's Council on Admission, Graduation and Academic Standards. Please read student rights and responsibilities at www.wiu.edu/provost/students

Academic Accommodations: In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. For the instructor to provide the proper accommodation(s) you must obtain documentation of the need for an accommodation through Disability Resource Center (DRC) and give a copy to the course instructor. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she is not legally permitted to enquire about such particular needs of students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should contact the Instructor as to the most appropriate procedures to follow in such an emergency. Contact Disability Resource Center (DRC) at 298-2512 for additional services.

Exams: Class exams start at least 45 minutes earlier to give students enough time to finish the exam.

There will be 3 exams during the course of the semester, and a non-comprehensive final examination. Students must take all 3 exams and the final examination. The best study guide for the exam is your lecture notes. Memorizing lecture notes without a clear understanding of the course material will not be useful.
Missed exams: Only under extreme situations, if a student misses a lecture exam, with presentation of a valid and documented reason, approved by the Instructor, the student may be able to arrange for a makeup exam, which will be given within two weeks from the date the exam was administered. There will be no make-up for the missed final examination.

Exam format: Exams will consist of multiple choices, short and long questions. Exam questions will come directly from the lecture material and some questions will require synthesizing the information rather than splitting back the memorized facts. The multiple choice section of the exam (requires 2 HB pencil) and short/long questions will not be handed back to the students. Only the graded scantron will be returned. Students will be given a chance to go over the graded exam and then hand the exam back to the Professor.

GRADING DISPUTES: If I ever add up points incorrectly, I will immediately make any corrections in your favor. Please check for possible errors after exams are handed back. As soon as you notice an error either with addition or grading, please do bring it to my attention immediately.

Method of Evaluation: Total points accumulated from class exams and labs will make-up the overall course grade. Each exam will add to 100 pts.
Exams 1 & 3 will each count for 17.5% of the final grade (i.e. 35% combined)
Exam 2 will count for 20% of the final grade
Final exam will count for 20% of the final grade
Labs (quizzes and assignments) will add to 100 pts, and will count for 25% of the final grade.

Final Grade Distribution (plus and minus system):
A' = 89% A = 90-100% A' = does not exist
B' = 79% B = 80-87% B' = 88%
C' = 69% C = 70-77% C' = 78%
D' = 59% D = 60-67% D' = 68%
F = 0-58%

Important: A student must obtain at least 60% in the lab to pass the entire course.

The syllabus as shown below is subject to modification or change at the discretion of the Professor. Exam dates are subject to change if the course material is completed ahead of the schedule.

Lecture schedule

Aug 25 – Introduction of the Course Syllabus
Aug 27, 29 The Evolution of Cells (Chapter 1)
Sept 1 Labor Day (University closed)
Sept 3, 5 Composition of Cells: Macromolecules (Chapter 2)
Sept 8, 10, 12 Phospholipids & Plasma-membrane (Chapter 2)
Sept 15, 17, 19 DNA structure and Replication (Chapters 4 & 6) Lab 3 (Sep 16, 18) Bradford Protein Assay
Sept 22 DNA structure and Replication (Chapter 4 & 6)
Sept 24, 26, 29 RNA Synthesis and Processing (Chapter 7)
Oct 1 Review for exam 1
Oct 3 (Frid) Exam 1 Chapters 1, 2, 4 and 6 (Evol. & composition of cells, and DNA replication)
Oct 6 Discussion of exam 1 (if necessary)
Oct 8 RNA Synthesis and Processing

Laboratory Schedule

Aug 26, 28 - No labs are scheduled
Aug 26, 28 - No labs are scheduled
Lab 1 (Sep 2, 4) Pipetting lab (bring calculator)
Lab 2 (Sep 9, 11) Prokaryotes & eukaryotes
Lab 3 (Sep 16, 18) Bradford Protein Assay
Lab 4 (Sep 23, 25) TLC of Plant Pigments
Lab 5 (Sep 30; Oct 2) Spectrophotometry
Lab 6 (Oct 7, 9) Enzyme assay
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<tr>
<th>Date(s)</th>
<th>Topic</th>
<th>Lab(s)</th>
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<tr>
<td>Oct. 10 (Frid)</td>
<td>Fall Break (University closed)</td>
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<tr>
<td>Oct 13</td>
<td>RNA Synthesis and Processing</td>
<td>Lab 7 (Oct 14, 16) Review enzyme lab</td>
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<td>Oct 15, 20, 22, 24</td>
<td>Protein Synthesis (Chapter 2 &amp; 8)</td>
<td>Lab 8 (Oct 21, 23) Graph enzyme data (WG 272)</td>
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<td>Oct 27, 29</td>
<td>Protein Synthesis and Processing</td>
<td>Lab 9 (Oct 28, 30) Extract DNA &amp; set PCR</td>
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<td>Oct 31; Nov 3</td>
<td>Recombinant DNA Technology (Chapters 1 &amp; 4)</td>
<td>Lab 10 (Nov 4, 6) Analyze PCR products</td>
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<td>Nov 5</td>
<td>Review for exam 2 (if necessary)</td>
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<td><strong>Nov 7 (Frid)</strong></td>
<td><strong>Exam 2</strong></td>
<td>Chapters 2, 7 and 8 (RNA and Protein synthesis)</td>
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<td>Nov 10</td>
<td>If necessary, discussion of exam 2</td>
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<td>Nov 12, 14</td>
<td>Recombinant DNA Technology (Chapters 1 &amp; 4)</td>
<td>Lab 11 (Nov 11, 13) Isolation of histones</td>
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<td>Nov 17, 19, 21</td>
<td>Bioenergetics; Glycolysis (Chapters 3 &amp; 11)</td>
<td>Lab 12 (Nov 18, 20) SDS-PAGE; watch video</td>
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<td><strong>Nov 24-28</strong></td>
<td><strong>Thanksgiving Break</strong></td>
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<td>Dec 1, 3</td>
<td>TCA cycle (Chapters 3 &amp; 11)</td>
<td>Lab 13 (Dec 2, 4) Respiration</td>
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<td><strong>Dec 5 (Fri)</strong></td>
<td><strong>Exam 3</strong></td>
<td>Chapters 1, 3, 4 and 11 (Recombinant DNA and Bioenergetics)</td>
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<td>Dec 8, 10</td>
<td>Oxidative Phosphorylation and Fatty acid β-oxidation</td>
<td>Lab 14 (Dec 9, 11) TBD</td>
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<td>Dec 12</td>
<td>Review of Cellular Respiration</td>
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<td><strong>Dec 17 (Wednesday 1 - 2:50 p.m.) – Final Exam</strong></td>
<td><strong>on Cellular Respiration and β-oxidation (1 hour 50 minutes)</strong></td>
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