

**Chemistry 602 – Biochemistry: Cellular Processes**  
**Spring 2018**  
**4:00 – 5:15 MW, Chemistry Room 180**

**Instructor**

David Frick  
Chemistry Rom 333

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office hours: Monday/Wednesday/Friday 1-3 pm

**Prerequisites**

Jr status

C or better in Chem 501

*If you will need accommodations in order to meet any of the requirements of this course, please contact me as soon as possible.*

**Grading**

Undergraduate: [670 total points] Ten weekly d2L quizzes worth 20 points each, and three exams worth 100 points each on (2/20, 3/27, 4/24) and a final exam worth 150 points (5/16). Attend and review graduate student presentations (20 points).

Graduate: [850 total points] Ten weekly d2L quizzes worth 20 points each, three exams each worth 100 points on (2/20, 3/24, 4/24) a final exam worth 150 points (5/16), and an oral presentation worth 200 points.

If you miss an exam you must notify the Dr. Frick and we will schedule a make-up exam.

The last day to drop without a “W” is February 18, 2018

The last day to drop with a “W” is April 7, 2018

University Policies located online at [http://www4.uwm.edu/acad\\_aff/policy/](http://www4.uwm.edu/acad_aff/policy/)

**Required Textbook**

DL Nelson & MM Cox, Lehninger: Principles of Biochemistry, 7<sup>th</sup> Edition. W.H Freeman and Co., © 2017

Alternate readings from free online sources will be included in the notes for each lecture that will be posted on D2L (<http://d2l.uwm.edu>)

Students who attain a B or better in this course typically spend 6-8 hours per week studying the material presented during class, and in the above readings. Since students are responsible for material presented in lectures that is not covered in the readings, class attendance is highly recommended. Lecture slides, animations, and additional readings will be posted on D2L.

## SCHEDULE & Suggested Readings

Week	Meeting	Topic	Reading
1	Jan 23	Foundations	Chapter 1
	Jan 28	Nucleotides & Nucleic Acids	Chapter 8
	Feb 1	<b>Quiz 1</b> Deadline – 11 PM	
2	Jan 30	DNA Technologies I	Chapter 9
	Jan 4	DNA Technologies II	
	Feb 8	<b>Quiz 2</b> Deadline – 11 PM	
3	Feb 6	Genes & Chromosomes I	Chapter 24
	Feb 11	Genes & Chromosomes II	
	Feb 15	<b>Quiz 3</b> Deadline – 11 PM	
4	Feb 13	Current topic—Expanding the code	<a href="http://www.nature.com.ezproxy.lib.uwm.edu/articles/nature24659">http://www.nature.com.ezproxy.lib.uwm.edu/articles/nature24659</a>
	Feb 18	No Class	
	Feb 20	<b>Exam 1</b>	
5	Feb 25	DNA Replication I	Chapter 25
	Feb 27	DNA Replication II	
	Mar 3	<b>Quiz 4</b> Deadline – 11 PM	
6	Mar 4	DNA Damage	Chapters 25
	Mar 6	DNA Repair	
	Mar 10	<b>Quiz 5</b> Deadline – 11 PM	
7	Mar 11	RNA Transcription	Chapter 26
	Mar 13	RNA Processing	
	Mar 18, 20	Spring Break	
	Mar 24	<b>Quiz 6</b> Deadline – 11 PM	
8	Mar 25	Current topic—	
	Mar 27	<b>Exam 2</b>	
9	Apr 1	The Genetic Code	Chapter 27
	Apr 3	Protein Synthesis II	
	Apr 7	<b>Quiz 7</b> Deadline – 11 PM	
10	Apr 8	Gene expression – prokaryotic	Chapter 28
	Apr 10	Gene expression – eukaryotic	
	Apr 14	<b>Quiz 8</b> Deadline – 11 PM	
11	Apr 15	G-Protein Coupled Receptors	Chapter 12
	Apr 17	Tyrosine Kinases	
	Apr 21	<b>Quiz 9</b> Deadline – 11 PM	
12	Apr 22	Current topic— Stringent Factor	<a href="http://www.sciencedirect.com/science/article/pii/S10972765130024997_rdoc=1&amp;fmt=high&amp;origin=gateway&amp;docanchor=&amp;md5=b8429449ccfc9c30159a5f9aca92fbb">http://www.sciencedirect.com/science/article/pii/S10972765130024997_rdoc=1&amp;fmt=high&amp;origin=gateway&amp;docanchor=&amp;md5=b8429449ccfc9c30159a5f9aca92fbb</a>
	Apr 24	<b>Exam 3</b>	
13	Apr 29	Hormones	Chapter 23
	May 1	Metabolic Control	
	May 5	<b>Quiz 10</b> Deadline – 11 PM	
14	Apr 6	Current topic- TBA	
	May 8	Graduate Student Presentations	
	May 16	<b>Final Exam 3-5 PM</b>	CHM 180

## **Graduate Student Oral Presentations**

Each student will make a presentation to the class at the end of the semester during final exams week. The **goal** is to discuss the results and potential impact of a **new research study** related to class material that was completed in the past year. The student will also prepare, for distribution to the class, a **2-page Executive Summary** of the presentations

### **Format:**

1. Allow 30-40 minutes for the presentation.
2. Allow 10-20 minutes for class discussion.
3. PowerPoint should be used for visuals.
4. References must be written on the slides for all figures taken from others.
5. **NO PLAGIARISM.** In other words, you may not simply copy the paper onto slides and read it. The study must be explained in your own words.
6. Executive Summary (distribute to class on the day of the presentation).
  - a. Summary Abstract (less than 500 words)
  - b. Outline
  - c. Full references for the paper being presented and all other sources.

### **Deadlines:**

1. February 15. Select a topic.
  - Pick an article to present from the list on the next page.
  - Articles will be assigned on a first-come first-served basis.
  - Search PubMed to find related work and key background references.
2. March 15. Outline and References Due
  - Meet with Dr. Frick to discuss your progress and ideas.
3. April 15. PowerPoint & Summary (draft due)
  - Meet with Dr. Frick to review and/or practice your talk.
4. May 5. Presentation & Summary Due
  - Summary must be distributed to the class before the presentation.

**Grading:** Your presentation will be evaluated with respect to the following:

- A. Satisfactorily meeting deadlines. (10%)
- B. Search and retrieval of appropriate background material. (10%)
- C. Organization and Clarity of your presentations. (40%)
- D. Handling of Questions following the presentation. (10%)
- E. Quality of Executive Summary. (20%)
- F. Participation in Discussion (10%)

## Notices & Links to University Policies

1. *Students with disabilities*. Notice to these students should appear prominently in the syllabus so that special accommodations are provided in a timely manner. <http://uwm.edu/arc/>
2. *Religious observances*. Accommodations for absences due to religious observance should be noted. <http://www4.uwm.edu/secu/docs/other/S1.5.htm>
3. *Students called to active military duty*. Accommodations for absences due to call-up of reserves to active military duty should be noted. Students: <http://uwm.edu/active-duty-military/> Employees: <https://www.wisconsin.edu/ohrwd/download/policies/ops/bn9.pdf>
4. *Incompletes*. A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. [https://www4.uwm.edu/secu/docs/other/S\\_31\\_INCOMPLETE\\_GRADES.pdf](https://www4.uwm.edu/secu/docs/other/S_31_INCOMPLETE_GRADES.pdf)
5. *Discriminatory conduct*. Discriminatory conduct will not be tolerated by the University. It poisons the work and learning environment of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff. [https://www4.uwm.edu/secu/docs/other/S\\_47\\_Discrimina\\_duct\\_Policy.pdf](https://www4.uwm.edu/secu/docs/other/S_47_Discrimina_duct_Policy.pdf)
6. *Title IX/Sexual Violence*. Title IX is a federal law that prohibits sex discrimination in education program or activities, and UWM policy prohibits such conduct (see Discriminatory Conduct, above). This includes sexual violence, which may include sexual harassment, sexual assault, relationship violence, and/or stalking in all educational programs and education-related areas. UWM strongly encourages its students to report any instance of sex discrimination to UWM's Title IX Coordinator ([titleix@uwm.edu](mailto:titleix@uwm.edu)). Whether or not a student wishes to report an incident of sexual violence, the Title IX Coordinator can connect students to resources at UWM and/or in the community including, but not limited to, victim advocacy, medical and counseling services, and/or law enforcement. For more information, please visit: <https://uwm.edu/sexual-assault/> .
7. *Academic misconduct*. Cheating on exams or plagiarism are violations of the academic honor code and carry severe sanctions, including failing a course or even suspension or dismissal from the University. <http://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/>
8. *Complaint procedures*. Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy. [https://www4.uwm.edu/secu/docs/other/S\\_47\\_Discrimina\\_duct\\_Policy.pdf](https://www4.uwm.edu/secu/docs/other/S_47_Discrimina_duct_Policy.pdf)
9. *Grade appeal procedures*. A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides or in the case of graduate students, the Graduate School. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School. <http://www4.uwm.edu/secu/docs/other/S28.htm>
10. *LGBT+ resources*. Faculty and staff can find resources to support inclusivity of students who identify as LGBT+ in the learning environment. <http://uwm.edu/lgbtrc/>
11. *Other*. The final exam requirement, the final exam date requirement, etc. <http://www4.uwm.edu/secu/docs/other/S22.htm>