

**Brooklyn College of the City University of New York**  
**Department of Chemistry**  
**Fall 2018 Syllabus – Professor Davenport**  
**Chemistry 4571 MW5 (17194) / Chemistry 7571G MW5 (17206)**  
**Biochemistry I: Introductory Biochemistry**  
**(3 credits; 3 hours lecture)**

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**Course Goals and Learning Objectives.** The goal of this course is to provide students with the fundamentals of introductory biochemistry. Students will become proficient in the structure/function properties of biological macromolecules. Lectures will focus on: the properties of water; amino acids; proteins; enzymes; nucleic acids; lipids and membranes; carbohydrates; with a basic introduction to carbohydrate metabolism and oxidative phosphorylation. Students will also be introduced to biochemical methodologies used for purification of complex biomolecules and the elucidation of their structures.

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**Required Text:**

Biochemistry, 4<sup>th</sup> edition, C.K. Mathews, K.E. van Holde, D.R. Appling and S.J. Anthony-Cahill. Pearson, 2013 (ISBN: 978-0-13-800464-4) (M).

**Recommended Text:**

Biochemistry, 8<sup>th</sup> edition, J.M. Berg, J.L. Tymoczko, G.J. Gatto, Jr. and L. Stryer. W.H. Freeman and Co., New York, 2015 (ISBN: 1-46-412610-0). The 5<sup>th</sup> edition (2002) is freely searchable from the NCBI/NIH Bookshelf: (<https://www.ncbi.nlm.nih.gov/books/NBK21154/?depth=10>).

**Supplementary Material:**

Practice problems taken (primarily) from: Biochemical Calculations, 2<sup>nd</sup> edition, I.H. Segel (John Wiley & Sons) will be posted on Blackboard.

For exam preparation, biochemistry multiple choice practice questions are freely available from on-line test banks. Using your web browser, type in: "biochemistry multiple choice questions".

**Note:** Lecture notes are posted using Blackboard. Please ensure that you have access to this class through Blackboard, and check that the posted email address is the one that you access regularly.

**Attendance:**

Chemistry 4571 and 7571G are not on-line courses and to do well in these classes, attendance in lectures is highly recommended. Attendance will be recorded, but not graded.

**Instructor Contact Information:**

Professor Lesley Davenport  
Email: [LDvnport@brooklyn.cuny.edu](mailto:LDvnport@brooklyn.cuny.edu)  
Tel: 718-951-5000 (ext. 2825)

**Office Hours (344NE):**

Monday: 10:00am – 11:30am  
Wednesday: 10:00am – 11:30am  
And by appointment (please email first).

**Examination Dates (Chem. 4571 and 7571G students):**

First Lecture Examination:

Wednesday, October 10<sup>th</sup>, 2018 (5:30pm - 6:45pm) in 2310N.

Second Lecture Examination:

Wednesday, November 14<sup>th</sup>, 2018 (5:30pm – 6:45pm) in 2310N.

Final Lecture Examination:

Monday, December 17<sup>th</sup>, 2018 (3:30pm – 5:30pm) in 2310N. To be confirmed.

**Term Paper (Chem. 7571G students ONLY):**

Due (electronically) before midnight on Wednesday, December 5<sup>th</sup>, 2018.

**Schedule of Lectures:**

Class meets weekly on Monday and Wednesday evenings (5:30pm – 6:45pm) in 2310N from August 27<sup>th</sup> through December 12<sup>th</sup>, 2018, inclusive.

No Classes: Mondays: September 3<sup>rd</sup>, September 10<sup>th</sup>, and October 8<sup>th</sup>, and Wednesdays: September 19<sup>th</sup>, 2018.

Conversion Class: Wednesday, September 5<sup>th</sup>, 2018 (classes follow a Monday schedule).

Thanksgiving Holiday: November 22<sup>nd</sup> – November 25<sup>th</sup>, inclusive.

**Important Dates (2018):**

Monday, August 27<sup>th</sup>: Weekday classes begin.

Sunday, September 2<sup>nd</sup>: Last day to add a course

Sunday, November 16<sup>th</sup>: Last day to drop a course without a "W" grade.

Tuesday, November 6<sup>th</sup>: Last day to withdraw from a course with a "W" (non-penalty) grade.

Tuesday, November 6<sup>th</sup>: Last day for students to resolve outstanding assignments for Spring 2018 incomplete (INC) grades.

### Lecture Topics:

#### Topic 1: Introduction to Biochemistry

Scope of Biochemistry (Chapter 1M).  
The Matrix of Life (Chapter 2M).  
The Energetics of Life (Chapter 3M).

#### Topic 2: Amino Acids, Proteins and Enzymes

Introduction to Proteins (Chapter 5M).  
The 3D-Structures of Proteins (Chapter 6M).  
Protein Function and Evolution (Chapter 7M).  
Enzymes: Biological Catalysts (Ch. 11M).

#### Topic 3: Nucleic Acids

Nucleic Acid Structure (Chapter 4M).  
DNA Repair (Chapter 26M; pp.1080-1088).  
Replication (Chapter 25M; pp.1036-1041).  
Transcription (Chapter 27M; pp.1125-1142).  
Translation (Chapter 28M; pp.1173-1187;  
1196-1204; pp.1206).

#### Topic 4: Lipids and Membranes

Lipids, Membranes and Cellular Transport  
(Chapter 10M).

#### Topic 5: Carbohydrates & Introductory Metabolism

Carbohydrates (Chapter 9M).  
Carbohydrate Metabolism (Chapter 13M;  
Figure 13.1 and pp. 518-524).

#### Further Reading (NOT ON THE EXAM):

Citric Acid Cycle (Chapter 14; Figure 14.1,  
pp. 592-598);  
Oxidative Phosphorylation (Chapter 15;  
Figure 15.1, pp. 625-628; 643-646).

### Grade Breakdown:

**Chem. 4571:** Final grades are calculated as an average of two midterm exams and a (non-cumulative) final lecture examination.

The grade breakdown is as follows:

**33%** first lecture exam grade

**33%** second lecture exam grade

**34%** final lecture exam grade

Exams will be based on lecture and textbook materials and can include: true/false; multiple choice; and matching column type questions to test your factual knowledge and understanding of concepts. Please note that there are **NO makeup exams**. Unjustified absences on midterm exams will be assigned a grade of zero (0). For justified absences (e.g. unavoidable documented issues; doctor's note), your semester average will be based on the grades from your other two exams. Please note that you will not receive a grade for the course if you miss two mid-term lecture exams or the final lecture exam. No "extra-credit projects" will be accepted. Letter grades for the course are determined using a curve if required. The class average (typically ~68%) usually establishes a "C" grade.

**Chem. 7571G:** Final grades are calculated as an average of two midterm exams and a (non-cumulative) final lecture examination plus a term paper (due electronically by midnight on **Wednesday, December 5<sup>th</sup>, 2018**).

The grade breakdown is as follows:

**25%** first lecture exam grade

**25%** second lecture exam grade

**25%** final lecture exam grade

**25%** term paper

Please upload a copy of your selected term paper by midnight on Wednesday, October 17<sup>th</sup>, using the "Assignments" folder found in Blackboard, or hand-in a hard copy during lecture. Details of the requirements and format for the term paper may be found on Blackboard.

Exams will be based on lecture and textbook materials and can include: true/false; multiple choice; and matching column type questions to test your factual knowledge and understanding of concepts. Please note that there are **NO makeup exams**. Unjustified absences on midterm exams will be assigned a grade of zero (0). For justified absences (e.g. unavoidable and documented issues; doctor's note), the semester average will be based on the other two exams. Please note that you will not receive a grade for the course if you miss two mid-term lecture exams or the final lecture exam. No "extra-credit projects" will be accepted. Letter grades for the course are determined using a curve if required.

### INC Grades:

If a student misses the final lecture examination due to a documented emergency, you **MUST** notify the lecturer **within 24-hours** of the final examination if you wish to receive an INC grade. **This assumes that all other course requirements have been satisfied and that you are intending to take a makeup final examination.** In the absence of student consultation with the instructor, you will be assigned a zero (0) on the final exam and this grade will be included in determination of the overall course grade. If you receive an INC grade you will need to contact your lecturer at the beginning of the semester following the course in order to determine the scheduled absentee makeup final exam date. You only have one semester to makeup the final exam.

**Please note that the INC grade lapses to an FIN grade if you do not complete a makeup final examination by the deadline set by the University.**

**Honors (H) Designation for Chemistry 4571:**

Please discuss the option with Professor Davenport if you are planning to take Chemistry 4571 for honors. Details of the requirements for this designation may be found on Blackboard. A letter grade of B or better is required in order to receive the Honors designation for this class. Please upload a copy of your selected research paper by midnight on **Wednesday, October 17<sup>th</sup>, 2018** using the "Assignments" folder found in Blackboard. After this deadline, the site will close and no papers will be accepted. The final review paper is due electronically by midnight on **Wednesday, December 5<sup>th</sup>, 2018**.

**Non-Attendance Due to Religious Beliefs:** The state law regarding non-attendance because of religious beliefs shall be followed as given in the 2018-2019 Brooklyn College Bulletin, Undergraduate Programs:

(<http://www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins.php>)

**Accommodations for Students with**

**Disabilities:** In order to receive disability-related academic accommodations, students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect that they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell ([vstewart@brooklyn.cuny.edu](mailto:vstewart@brooklyn.cuny.edu)) at 718-951-5538 in Room 138 Roosevelt Hall. If you have already registered with the Center for Student Disability Services, please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

**Academic Integrity:** The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for implementing that policy can be found at this site: <http://www.brooklyn.cuny.edu/bc/policies>. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member **MUST** report the violation. All students should read carefully and thoroughly the 2018-2019 Brooklyn College Bulletin for a complete listing of academic regulations of the College:

(<http://www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins.php>).

**Student Bereavement Policy:** Students who experience the death of a loved one must contact the Division of Student Affairs, 2113 Boylan Hall, if they wish to implement either the Standard Bereavement Procedure or the Leave of Absence Bereavement Procedure:

(<http://www.brooklyn.cuny.edu/web/about/initiatives/policies/bereavement.php>).