

**Brooklyn College of the City University of New York**  
**Department of Chemistry**  
**Fall 2019 Syllabus – Professor Davenport**  
**Chemistry 4571 TR5 (34025) / Chemistry 7571G TR5 (34032)**  
**Biochemistry I: Introductory Biochemistry**  
**(3 credits; 3 hours lecture)**

---

**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.

---

**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):**

Tuesday: 7:00pm – 8:30pm  
Thursday: 7:00pm – 8:30pm  
And by appointment (please email first).

**Examination Dates, 2019 (Chem. 4571 and 7571G students):**

(Lecture exams are non-cumulative). **Please bring your BC/CUNY ID card to the exams.**

First Lecture Examination:

Thursday, October 3<sup>rd</sup> (5:30pm - 6:45pm) in 3127N.

Second Lecture Examination:

Thursday, November 7<sup>th</sup> (5:30pm – 6:45pm) in 3127N.

Final Lecture Examination:

Tuesday, December 17<sup>th</sup> (3:30pm – 5:30pm) in 3127N. Time, date & location to be confirmed.

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

Due (electronically) before midnight on Thursday, December 5<sup>th</sup>, 2019.

**Schedule of Lectures (2019):**

Class meets weekly on Tuesday and Thursday evenings (5:30pm – 6:45pm) in 3127N (IH) from August 27<sup>th</sup> through December 12<sup>th</sup>, inclusive.

No Classes: Thursday, September 5<sup>th</sup>; Tuesday October 1<sup>st</sup> and October 8<sup>th</sup>.

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

Thanksgiving Holiday: November 28<sup>th</sup> – December 1<sup>st</sup>, inclusive.

**Important Dates (2019):**

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

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

Thursday, September 5<sup>th</sup>: Last day to submit a Pass/Fail elective application online for Fall 2019.

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

Tuesday, November 5<sup>th</sup>: Last day to withdraw from a course with a "W" (non-penalty) grade.

Monday, November 11<sup>th</sup>: Last day for students to resolve outstanding assignments for Spring 2019 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).

Introduction to Carbohydrate Metabolism (Chapter 13M; Figure 13.1 and pp. 518-524 only).

### Further Reading (NOT ON THE FINAL 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. Additionally case/research studies may be used to provide the basis for examination questions. Please note that there are NO makeup exams. For justified absences (e.g. unavoidable issues - official documentation is required) the first or second lecture exam score will count as the missed lecture exam grade. You will not receive a grade for the course if you miss two 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. An averaged exam score for the course of ~70% usually establishes a “C” grade. The deadline for students to apply for an online pass/fail elective rather than a letter grade for this course is **September 5<sup>th</sup>, 2019**. No requests will be supported following the deadline. For more information see:

<http://www.brooklyn.cuny.edu/web/academics/special-programs/first/peermentor/station.php>.

**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 **Thursday, December 5<sup>th</sup>, 2019**).

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 Thursday, October 10<sup>th</sup>, using the “Assignments” folder found in Blackboard, or hand-in a hard copy during lecture. The final research paper, which is due electronically by midnight on **Thursday, December 5<sup>th</sup>, 2019**, can also be uploaded electronically through the “Assignments” folder found in Blackboard. 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. Additionally case/research studies may be used to provide the basis for examination questions. 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 issues - official documentation is required) the first or second lecture exam score will count as the missed lecture exam grade. You will not receive a grade for the course if you miss two 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 **Thursday, October 10<sup>th</sup>, 2019** using the "Assignments" folder found in Blackboard. After this deadline, the site will close and no papers will be accepted. The final research review paper, which is due electronically by midnight on **Thursday, December 5<sup>th</sup>, 2019**, can also be uploaded electronically through the "Assignments" folder found in Blackboard.

**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 2019-2020 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>).

**Non-Attendance Due to Religious Beliefs:** The state law regarding non-attendance because of religious beliefs shall be followed as given in the 2019-2020 Brooklyn College Bulletin, Undergraduate Programs:

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