**Introductory Biochemistry**

**COURSE OUTLINE**

**Spring 2018**

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| Course Number  Course Title | CHM 365  CRN:2231  Introductory Biochemistry |
| Semester/Year  Credit hours | Fall 2017  3 |
| Days/Time | M,W and F 1:00 pm-1:50 pm |
| Location | S276 |
| Instructor | Menashi Cohenford, BSc., MT, Ph. D |
| Office | BBSC Room 241 H |
| E-Mail | [Cohenford@marshall.edu](mailto:Cohenford@marshall.edu) |
| \*Office/Hours | TBA or by appointment |
| University Policies | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [www.marshall.edu/academic-affairs/Policies](http://www.marshall.edu/academic-affairs/Policies)/. Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment.  **Policy for Students with Disabilities:** Marshall University is committed to equal opportunity education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disability Services (ODS) in Prichard Hall 117 (304.696.2467) to provide documentation of their disability. Following this, the ODS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing, and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, access the website for the Office of Disabled Student Services: <http://www.marshall.edu/disabled> |

**\***Or by appointments.

**Statement of Course:** CHM 365 is a survey coursethat covers a wide range of topics including introduction to basic biochemical concepts, metabolic pathways, and bioenergetics. The objective of this course is to present a clear discussion of the biochemistry of mammalian cells and to relate the biochemical events at the cellular level to the physiological processes occurring in the whole animal.

**Prerequisites**: CHM 327 or CHM 356.

**Required Texts and Materials:**

* Biochemistry: The Molecular Basis of Life. Sixth Edition.

Authors: Trudy McKee/James R. McKee. Oxford University Press

ISBN 978-0-19-020989-6

* Non-programmable calculator for exams and #2 pencils for tests.
* Supplemental materials are contained within the Blackboard learning environment (<http://www.marshall.edu/muonline/>).

**Grading Policy and Grading System:** Your grades for the course will be calculated based on two options.

For students not seeking to take the final exam (**option 1**), the final grade for the course will be determined based on a total of 300 points as follows:

Exam 1: 100 Exam II: 100

Exam III: 100

Total points 300

Final Grade under Option I:

Total Points

A: 270-300

B: 240-269

C: 210-239

D: 180-209

F: Below 180

For students seeking to take the final exam (**option II**), the final exam will count 100 points and a student’s’ overall grade will be based on a total of 400 points as follows:

Exam 1: 100 Exam II: 100

Exam III: 100

Final Exam 100

Total 400

Final Grade under Option II:

Total Points

A: 360-400

B: 320-359

C: 280-319

D: 240-279

F: Below 240

**Note**: *No student will be allowed the choice for exercising both options*.

**Exams:** The exams will focus on the materials presented in class. All lectures will be in PowerPoint format. Each exam will be based on multiple choice questions and/or descriptive essays. These essays may at times be thought provoking and require you to apply learned concepts in simulated situations.

**Make-up Exams and Penalty***:* Make-up exams will be granted only in cases recognized by the University through an excused absence; the policy/form on excused absences can be found on http://www.marshall.edu/student-affairs/excused-absence-form/. Students without a valid excuse will receive an F (zero) for the exam.

**Attendance Policy:** Punctual attendance to lectures will be required. Any student entering the class late maybe asked by the instructor to leave the lecture hall.

**Other Policies:** The use of cell phones is prohibited in class. Any student using a cell phone will be asked to leave the lecture hall.

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| **Course Student Learning Outcomes** | **How Practiced in this Course** | **How Assessed in this Course** |
| Students will gain an understanding of:   * Water and Its Properties as well as buffers and their properties. * Bioenergetics * Chemistry and Structure of Amino Acids. * Peptides and Proteins | In-class lectures, discussions, and reading materials provided by instructor. | Exam I  Exam I covers instructor’s PowerPoint presentations and instructor’s recommended reading materials. |
| Students will learn about:   * Enzymes & Enzyme kinetics * Chemistry and Reactions of Carbohydrates. * Glycolysis, | In-class lectures, discussions, and reading materials provided by instructor. | Exam II  Exam II covers PowerPoint presentations made in class and recommended reading materials provided by instructor. |
| Students will learn about:   * Gluconeogenesis * Glycogen Synthesis & Breakdown * The Pentose Pathway. * The TCA Cycle. * Lipids and membranes * The Urea Cycle | In-class lectures, discussions, and reading materials provided by instructor. | Exam III  Exam III covers PowerPoint presentations made in class and recommended reading materials provided by instructor. |

**†Course Schedule**

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| Jan 8th -Jan 12th | Overview of Course |
| Week 1 | PowerPoint Presentation (PPT): Water Part I  PPT: Water Part II  Chapter III in textbook Entitled ” Water: The Matrix of Life” pages 75-103 |
| Jan 15th -Jan 19th  Week 2 | PPTs: Bioenergetics  Amino Acids- Part I  Chapters 4 and 5 in textbook entitled “Energy” and ‘Amino Acids, Peptides and Proteins’ respectively on pages 109-129 and 130-189. |
| **Jan 15th** | **Martin Luther King, Jr. Holiday** |
| Jan 22nd -26th  Week 3 | PPT: Amino Acids- Part I  PPT: Amino Acids, Peptides & Proteins Part II  Chapter 5 in textbook entitled” Amino Acids, Peptides and Proteins “ pp: 130-189. |
| Jan 29th-Feb 2nd  Week 4 | PPT: Amino Acids, Peptides & Proteins Part II  PPT: Amino Acids, Peptides & Proteins Part III  Chapter 5 in textbook entitled” Amino Acids, Peptides and Proteins “ pages 130-189. |
| Feb 5th -Feb 9th  Week 5 | **EXAM I-** **Feb 5th** (Water and Buffers, Bioenergetics, Amino Acids, Peptides and Proteins)  PPT: Enzymes Part 1  PPT: Enzymes Part II  Chapter 6 in textbook entitled “Enzymes” pages 190-230. |
| Feb 12th- –Feb16  Week 6 | PPT: Enzymes Part II  PPT: Enzymes Part III  Chapter 6 in textbook entitled “Enzymes” pages 190-230. |
| Feb 19th -Feb 23rd  Week 7 | PPT: Enzymes Part III  PPTs: Carbohydrates Part 1  Chapter 7 in textbook entitled ‘Carbohydrates’ pages: 239-270. |
| Feb 26th- March 2nd  Week 8 | PPTs: Carbohydrates Part II  PPTs: Carbohydrates Part III  Chapter 7 in textbook entitled ‘Carbohydrates’  pages 239-270. |
| **March 5th- March 9th**  **Week 9** | PPT: Carbohydrates Part III  PPT: Carbohydrates Part IV  PPT: An Overview of Glycolysis  Chapter 8 in textbook entitled ‘Carbohydrate Metabolism’’  pages 271-312. |
| March 12th- March 16th  **March 16th**  Week 10 | PPT: An Overview of Glycolysis  PPT: An Overview of Gluconeogenesis  Chapter 8 in textbook entitled ‘Carbohydrate Metabolism’’  pages 271-312.  **EXAM II (Enzymes, Carbohydrates, Glycolysis)** |
| Mar 19th- Mar 23rd  Week 11 | **SPRING BREAK** |
| Mar 26th- Mar 30th  Week 12 | PPT: An Overview of Gluconeogenesis  PPT: An Overview of Glycogen Synthesis and Breakdown  PPT: An Overview of the Pentose Pathway  Chapter 8 in textbook entitled ‘Carbohydrate Metabolism’’  pages 271-312. |
| April 2nd-April 6th  Week 13 | PPT: An Overview of the Pentose Pathway  PPT: The TCA Cycle    Chapter 8 in textbook entitled ‘Carbohydrate Metabolism’’  pages 271-312.  Chapter 9 in textbook entitled ‘Aerobic Metabolism I’’ pages 317-340. |
| April 9th-April 13  **Week 14** | PPTs: Lipids and Membranes  Chapter 11 in textbook entitled “Lipids and Membranes pages 383-415. |
| April 16th- April 20th  Week 15 | PPTs: Amino Acid Disposal of Nitrogen & the Urea Cycle (58)  Chapter 15 in textbook entitled “Amino Acid Catabolism” pages 559-564. |
| April 23rd- April 27th  April 27th  **Week 16** | **EXAM III covers the PowerPoints focusing on** Gluconeogenesis, Glycogen Synthesis & Breakdown, the Pentose Pathway, The TCA Cycle, Lipids and Membranes, Amino Acid Disposal of Nitrogen & the Urea Cycle.  Last day of Class |

**‡** The above course schedule is presented as a guide only and may be changed at any time by the instructor.