

**Calendar Course Descriptions of
Prerequisites Currently Offered at Western**

The following course descriptions are taken from the web version of the [Western Academic Calendar](#) for 2017.

All applicants must have taken approved courses in the following subjects: Biochemistry, Organic Chemistry and Human or Mammalian Physiology.

1. BIOCHEMISTRY

Biochemistry 2280A - Biochemistry and Molecular Biology

An introduction to biochemistry with emphasis on protein structure and function, intermediary metabolism and nucleic acid structure and function.

Antirequisite(s): Biochemistry 2288A.

Prerequisite(s): Either Biology 1001A or 1201A and either Biology 1002B or 1202B; Chemistry 1301A/B and 1302A/B, or the former Chemistry 1100A/B and 1200B. Integrated Science 1001X can be used as a prerequisite in place of Biology 1002B and Chemistry 1302A/B.

Extra Information: 3 lecture hours, 0.5 course.

Note: It is strongly recommended that a course in organic chemistry be taken previously or concurrently (e.g. Chemistry 2213A/B or 2273A).

OR

Chemistry 4493A/B - Chemistry of Biological Macromolecules

A survey of the chemistry of monosaccharides, amino acid and nucleosides with modern synthetic methods to oligosaccharides, polypeptides and polynucleotides.

Prerequisite(s): Chemistry 3373F.

Extra Information: 3 lecture hours, 0.5 course.

OR

Chemical and Biochemical Engineering 2290A/B - Fundamentals of Biochemical and Environmental Engineering

The overall objective of the course is to apply the principles of microbiology, biochemistry to understand and solve environmental problems. This course covers the fundamental concepts of biological processes that are important in natural and engineered environmental systems. Students will gain basic skills of biochemistry and microbiology in laboratory section.

Antirequisite(s): The former Biology 1222 or Biology 1223.

Prerequisite(s): Chemistry 1302A/B or the former Chemistry 1024A/B 1050 or 1020.

Extra Information: 3 lecture hours, 3 laboratory hours, 0.5 course.

2. ORGANIC CHEMISTRY

Chemistry 2213A/B - Organic Chemistry for Life Sciences

An introduction to the basic concepts of structure, stereochemistry and reactions in organic chemistry with an emphasis on its connections to the biological, health or medical sciences.

Antirequisite(s): Chemistry 2273A.

Prerequisite(s): Chemistry 1301A/B and Chemistry 1302A/B, or the former Chemistry 1100A/B and 1200B, or the former Chemistry 1050.

Extra Information: 3 lecture hours, 1.5 laboratory hours (3 hours every other week) 0.5 course.

Note: The combination of Chemistry 2213A/B and Chemistry 2223B provides the equivalent of a full course in Organic Chemistry with a laboratory, which is a prerequisite for some professional programs.

OR

Chemistry 2273A - Organic Chemistry I: Structure and Spectroscopy

Introduction to 3D structure, spectroscopy and chemical reactions of alkanes, alkenes, alkynes, benzene, and alkyl halides. Introduction to reaction mechanisms and the interpretation of IR and NMR spectra. Laboratory: techniques of experimental organic chemistry; illustrative preparations of organic compounds.

Antirequisite(s): Chemistry 2213A/B.

Prerequisite(s): Chemistry 1301A/B and Chemistry 1302A/B with a minimum average mark of 60%, or the former Chemistry 1100A/B and 1200B with a minimum average mark of 60%, or the former Chemistry 1050 with a minimum mark of 60%.

Extra Information: 3 lecture hours, 1.5 laboratory hours/week (3 hours every other week), 0.5 course.

3. PHYSIOLOGY

Physiology 2130 - Human Physiology

A survey course outlining the principles of human/mammalian physiology: general properties of the living cell and internal environment; neural, muscle, cardiovascular, respiratory, gastro-intestinal, renal and endocrine system; metabolism, reproduction, and homeostasis.

Antirequisite(s): Physiology 1020, 1021, 3120.

Prerequisite(s): First-year courses in Biology and Chemistry are recommended.

Extra Information: 2 lecture hours, 1 tutorial hour, 1.0 course.

OR

Physiology 3120 - Human Physiology

A survey of the physiology of various systems (e.g. neural, endocrine, renal, cardiovascular, digestive, respiratory, etc.) of the human.

Prerequisite(s): one of Physics 1028A/B, 1301A/B or 1501A/B and one of Physics 1029A/B, 1302A/B or 1502A/B; 1.0 course from: Calculus 1000A/B or 1500A/B or the former 1100A/B, Calculus 1301A/B or 1501A/B, Mathematics 1600A/B or the former Linear Algebra 1600A/B, Mathematics 1225A/B, 1228A/B, 1229A/B, Statistical Sciences 1024A/B, Applied Mathematics 1201A/B, 1413; one of Biology 1001A or 1201A and one of Biology 1002B or 1202B; or permission of the department. It is

strongly recommended that [Biochemistry 2280A](#) and [Biology 2382B](#) be taken prior to [Physiology 3120](#). Open only to students who are registered in Years 3 or 4.

Extra Information: 3 lecture hours, 1.0 course.

Physiology Challenge Exam

Candidates who are competitive in the applicant pool and have been invited to interview, but whose physiology backgrounds have not been approved as being equivalent to the dental curriculum's requirement will be asked to take the Physiology Challenge Exam. The exam is similar to the instrument used to evaluate students who take Physiology 2130. It is a three-hour exam in the multiple choice format. A grade of 74.5% is required in order for one's physiology requirement to be deemed fulfilled. There is an administrative charge to cover the costs of administering the exam.

To be successful in the Challenge Exam, students should be familiar with human systems physiology at the level presented in a recent edition of one of the following textbooks:

- 1) Vander, Sherman and Luciano (McGraw Hill). [Human Physiology: The Mechanism of Body Function.](#)
- 2) Silverthorn (Prentice Hall). [Human Physiology: An Integrated Approach.](#)

A course synopsis on which the physiology challenge exam is based can be found at the following website:

http://www.schulich.uwo.ca/dentistry/docs/future_students/Physiology_Challenge_Exam.pdf.

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