

CONCORDIA UNIVERSITY
DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY
CHEMISTRY 498/670
CHEMICAL BIOLOGY OF NATURAL PRODUCTS
COURSE INFORMATION

COURSE FORMAT: Lectures ONLY.

INSTRUCTOR: Brandon Findlay
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OFFICE HOURS: By appointment only.

OUTLINE: This course will examine how small molecule natural products interact with their cellular targets, with a special emphasis on the role of therapeutics like antibiotics and anticancer drugs. We will also cover the role of these compounds in their natural environment, with a focus on intra-species competition and symbiosis.

PREREQUISITES: CHEM 375. Students may not take both this course and CHEM 498/670 – Secondary metabolism for credit.

GRADING:

Class participation	5%
Presentation	20%
Midterm Exam	25%
Final Exam	50%

PRESENTATIONS: Each student will give a 20-25 minute presentation on a key advance touching on course material, either in pairs (undergraduates) or alone (graduate students). Students will be evaluated on the quality of their talk and their response to questions from the audience. Asking questions and providing constructive feedback on student presentations will contribute to a student's participation grade.

COURSE OUTLINE:

<i>Lecture</i>	<i>Topic</i>
1	Introduction
2	Getting Into the Cell
3	Introduction to Chemical Ecology
4	Signals Between Bacteria

5	Bacterial Communities
6	Cheaters, Cues, and Threats
7	The Multicellular Lifestyle
8	Plant and Mushroom Natural Products
9	Insects and Pheromones
10	The Rhizobia and Mycorrhizal Fungi
11	The Limits of Symbiosis
12	Mammalian Natural Products
13	Midterm
14	A Brief History of Antibiotics
15	Antibiotics and the Cell Envelope
16	Antibiotics That Target Primary Metabolism
17	The Ecological Role of Antibiotics
18	Antibiotics as Defences
19	Detoxifying Antibiotics
20	Interactions Between Bacteria and Eukaryotes
21	Natural Products with Anticancer Activities
22	Biocides: Natural Products Vs Nucleic Acids
23	Other Therapeutically-relevant Natural Products
24	Probing Natural Product Function
25	The Microbiome
26	Wrap-up