

Term Information

Effective Term Spring 2018

General Information

Course Bulletin Listing/Subject Area Chemistry
Fiscal Unit/Academic Org Chemistry - D0628
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 2990
Course Title Intro to Chemical Research
Transcript Abbreviation Intro to Research
Course Description A seminar course targeting chemistry majors focusing on the development of professional skills, conducting literature searches, writing research papers, and exploring careers and research options.
Semester Credit Hours/Units Fixed: 1

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Seminar
Grade Roster Component Seminar
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Chemistry 1220/1620/1920H (Gen Chem 2) AND ENGLISH 1110
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 40.0501
Subsidy Level Baccalaureate Course
Intended Rank Sophomore, Junior, Senior

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Students will better understand how a research paper is constructed, by authoring a research paper with proper structure, grammar, publication-quality figures, and citations.
- Students will improve their skills in conducting literature searches and organizing their references by executing a literature search on a research topic, and utilizing a reference manager for organizing and building a list of references.
- Students will better understand plagiarism and writing ethics through discussing the importance of ethical conduct in publications and discussing examples of unethical conduct.
- Students will discover the exciting chemical research being conducted at The Ohio State University by attending research presentations given by faculty conducting chemical research and explaining aspects of their projects.
- Students will investigate chemistry career options by attending and participating in career discussions.

Content Topic List

- Plagiarism discussion
- Conducting literature searches
- Parts of a Research Paper
- Writing an Outline, Begin Paper
- Making Figures
- Faculty Research Presentations
- Paper Q&A
- Career Discussion

Sought Concurrence

No

Attachments

- CHEM Curricular Map - Version 1.pdf: CHEM Curricular Map
(Other Supporting Documentation. Owner: Sutherland, Laura Nicolle Romrell)
- Intro to Chem Research Syllabus 4-8-17.pdf: Updated Syllabus
(Syllabus. Owner: Sutherland, Laura Nicolle Romrell)

Comments

- See 4-3-17 email to T Gustafson. *(by Vankeerbergen, Bernadette Chantal on 04/03/2017 12:59 PM)*

COURSE REQUEST
2990 - Status: PENDING

Last Updated: Haddad,Deborah Moore
06/07/2017

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Sutherland,Laura Nicolle Romre	03/02/2017 12:45 PM	Submitted for Approval
Approved	Gustafson,Terry Lee	03/02/2017 01:00 PM	Unit Approval
Approved	Haddad,Deborah Moore	03/02/2017 04:24 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	03/02/2017 06:10 PM	ASCCAO Approval
Submitted	Sutherland,Laura Nicolle Romre	03/10/2017 12:23 PM	Submitted for Approval
Approved	Gustafson,Terry Lee	03/10/2017 12:31 PM	Unit Approval
Approved	Haddad,Deborah Moore	03/10/2017 12:36 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	04/03/2017 12:59 PM	ASCCAO Approval
Submitted	Sutherland,Laura Nicolle Romre	06/07/2017 08:11 AM	Submitted for Approval
Approved	Gustafson,Terry Lee	06/07/2017 08:15 AM	Unit Approval
Approved	Haddad,Deborah Moore	06/07/2017 08:50 AM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	06/07/2017 08:50 AM	ASCCAO Approval

CHEMISTRY 2990 – Spring 2018

Introduction to Chemical Research

Lecture: Day, Time, Room, (1 credit hour)

Instructor: Dr. Nicole M. Karn
Email: karn.38@osu.edu
Office: MP 2029
Office Hours: TBA
Textbook: **Write Like a Chemist: A Guide and Resource** by Marin Robinson, Fredricka Stoller, Molly Costanza-Robinson.
Materials: Additional materials can be found on the course Carmen page.

Prerequisites: CHEM 1220, CHEM 162, or CHEM 1920H

Description: A seminar course targeting chemistry majors focusing on the development of professional skills, conducting literature searches, writing research papers, and exploring careers and research options.

Course Goals and Learning Objectives:

Course Goals	Learning Objectives
Students will better understand how a research paper is constructed.	Author a research paper with proper structure, grammar, publication-quality figures, and citations.
Students will improve their skills in conducting literature searches and organizing their references.	Execute a literature search on a research topic. Utilize a reference manager for organizing and building a list of references.
Students will better understand plagiarism and writing ethics.	Discuss the importance of ethical conduct in publications and discuss examples of unethical conduct.
Students will discover the exciting chemical research being conducted at The Ohio State University.	Attend research presentations given by faculty conducting chemical research and explain aspects of their projects.
Students will investigate chemistry career options.	Attend and participate in career discussions.

Disability Services (SLDS): Students with disabilities that have been certified by Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. Disability Services is located in 092L Baker Hall 113 W. 12th Avenue; Telephone 292-3307 | TDD 292-0901 | slds.osu.edu

Commitment to Diversity: The Department of Chemistry and Biochemistry promotes a welcoming and inclusive environment for all students and staff, regardless of race, gender, ethnicity, national origin, disability or sexual orientation. There is no tolerance for hateful speech or actions. All violations of this policy should be reported to the OSU Bias Assessment and Response Team (BART, studentaffairs.osu.edu/bias). The Department encourages diversity at all levels, particularly among the next generation of scientists. Students are encouraged to participate in organizations that provide support specifically for science and engineering students who are African-American, Asian, disabled, Hispanic, LGBTQ or women. These organizations are listed on the Colleges of Arts and Sciences (artsandsciences.osu.edu/stem-organizations) and Engineering (engineering.osu.edu/studentorgs) websites.

Student Responsibility: Each student receives this syllabus in the first week of the term. It is your responsibility to read this material and be familiar with the course content, procedures, and grading. You are also responsible for any announcements made in class and on Carmen concerning course procedures. (If you are absent, you are expected to get notes, announcements, etc. from another student in the class.)

Carmen | carmen.osu.edu: Carmen is the Learning Management System (LMS) used in this course. It utilizes an LMS engine called Canvas. Log in to Carmen on your device to access the course materials, turn in select assignments, view your grades, and track your progress throughout the semester. A Canvas app is also free to download for both [Android](#) and [iOS](#), making it easy to log in to your course from anywhere.

Grading: Your performance in the course will be evaluated based on a research paper, peer reviews, participation, attendance, and additional assignments. The Carmen page has a full list of the assignments and point values. Any concerns about your grades or performance should be addressed with your instructor promptly. No assignment will be “regraded” more than two weeks after the student has received a grade or feedback.

<u>Item</u>	<u>Percent</u>
Research Paper Outline	10
Research Paper Rough Draft	15
Research Paper Peer Comments	15
Research Paper Final Draft	30
Additional Assignments	20
Participation/Attendance	10

Research Paper Outline: Provide a 1-2 page outline of the research paper. We will discuss how to write an outline in class.

Research Paper: The research paper should be about 5 pages in length, double spaced, 12 point Times New Roman font. The goal is to write a paper of high enough quality that it could be submitted to a scientific journal. The rough draft should only require light grammatical editing and minor suggestions for additions or deletions to obtain the final draft.

Additional Assignments: These assignments include in-class assignments and activities and may include in-class group work. Homework from the textbook will be assigned. It is expected that homework assignments will not take more than one hour to complete.



Grade Scale (%):

93 - 100	A
90 - 92.9	A-
87 - 89.9	B+
83 - 86.9	B
80 - 82.9	B-
77 - 79.9	C+
73 - 76.9	C
70 - 72.9	C-
67 - 69.9	D+
60 - 66.9	D
Below 60	E

Attendance Policy: Students can have two unexcused absences without an effect on the course grade. For every absence beyond two, the final grade will be reduced by 1/3 of a letter grade (i.e. B becomes a B-). Any participation points will be forfeited in the case of an absence beyond the two permitted absences.

Late Assignments: Late assignments are penalized 5% per day (35% per week).

Course Schedule:

Week 1	Syllabus and Course overview, Plagiarism discussion by Dennis Learning Center or COAM representative
Week 2	Conducting Literature Searches, overview of search engines
Week 3	Reference Managers, Literature Search Assignment
Week 4	Parts of a Research Paper, Results/Discussion
Week 5	Parts of a Research Paper, Conclusion
Week 6	Parts of a Research Paper, Abstract/Introduction
Week 7	Writing an Outline, Begin Paper
Week 8	Making Figures
Week 9	Faculty Research Presentations
Week 10	Faculty Research Presentations, Rough Draft Due
Week 11	Faculty Research Presentations, Peer Review Due
Week 12	Faculty Research Presentations
Week 13	Paper Q and A, FAQs
Week 14	Career Discussion, Industry/Academia
Week 15	Career Discussion, Academia/Government
Finals week	Paper due



STANDARDS OF ACADEMIC CONDUCT

Violations of academic standards in Introduction to Chemical Research will be referred to the University Committee of Academic Misconduct (COAM) as required by Faculty Rules. It is the responsibility of COAM to investigate all reported cases of student academic misconduct; illustrated by, but not limited to, cases of plagiarism and any dishonest practices in connection with examinations, quizzes, and graded assignments. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information see the Code of Student Conduct: <https://trustees.osu.edu/assets/files/RuleBook/CodeStudentConduct.pdf> and the COAM page on the course Carmen site.

Student Responsibilities: *Any graded material submitted in this course must represent your own work.* This includes papers, outlines, reviews and assignments which are to be an individual effort. Resources must be properly cited in all submitted work. Unauthorized group efforts by students, use of another student's course materials, or assistance from individuals who already have taken the course, could place you in jeopardy of violation of the standards for this course. In some courses, group work is acceptable on certain activities (as explicitly stated by your instructor). In these cases, it is important that you know and understand where authorized collaboration (working in a group) ends and collusion (working together in an unauthorized manner) begins. Identical answers indicate copying or unacceptable group efforts - always answer questions in your own unique words. It is important that you consult with your instructor for clarification on whether or not collaboration is appropriate on an activity.

You should not assist others in violating academic standards. Students supplying materials for others to "look at" may be charged with academic misconduct. Never allow another student access to your assignments – even after completion of the course. "I didn't know they were going to copy my work" is not an acceptable excuse.

CHEM Curricular Map - Version 1

	KEY					Students develop knowledge within a historical perspective of the chemical principles and theories, both factual and conceptual	Working both individually and in groups, students solve both classical and contemporary chemistry problems which exemplify the current integrated nature of science disciplinary and interdisciplinary principles	Perform experimental laboratory procedures in a safe and ethical manner, collect and properly evaluate scientific data	Students develop effective skills in oral and written communication of scientific knowledge, formulate logical explanations and conclusions, and construct effective arguments.	Students retrieve information from the literature, and become proficient in online database searching including the evaluation of the quality and validity of both the source and content of such searches.	Students recognize social, historical, and philosophical implications of scientific discoveries, and understand the potential of science and technology to address problems of the contemporary world.
	0 = <i>Not in course</i>										
	1 = <i>Beginning Level</i>										
	2 = <i>Intermediate Level</i>										
	3 = <i>Advanced Level</i>										
	Name	Elective	BA	BS	Lec/Lab	PG1- Foundational Knowledge	PG2- Problem Solving	PG3- Laboratory Finesse	PG4- Scientific Communication	PG5- Information Acquisition	PG6- Real World Implications
CHEM 1210	Gen Chem 1		x	x	both	1	0	1	0	0	0
CHEM 1220	Gen Chem 2		x	x	both	1	0	1	0	0	0
CHEM 1610	Majrs Gen Chem 1		x	x	both	1	0	1	0	0	0
CHEM 1620	Majrs Gen Chem 2		x	x	both	1	1	1	1	0	1
CHEM 1910H	Hnrs Gen Chem 1		x	x	both	1	0	1	0	0	0
CHEM 1920H	Hnrs Gen Chem 2		x	x	both	1	1	1	1	0	1
CHEM 1612	PLTL Chem 1		x	x	Workshop	1	1	0	0	0	0
CHEM 1622*	PLTL Chem 2		x	x	Workshop	1	1	0	0	0	0
CHEM 2510	Org Lec 1		x	x	Lec	2	1	0	1	0	1
CHEM 2520	Org Lec 2		x	x	Lec	2	2	0	2	0	1
CHEM 2610	Mjrs Org Lec 1		x	x	Lec	2	1	0	1	0	1
CHEM 2620	Mjrs Org Lec 2		x	x	Lec	2	2	0	2	0	1
CHEM 2910H	Hnrs Org Lec 1		x	x	Lec	2	1	0	1	0	1
CHEM 2920H	Hnrs Org Lec 2		x	x	Lec	2	2	0	2	0	1
CHEM 2540	Org Lab 1		x	x	Lab	1	1	2	1	1	1
CHEM 2550	Org Lab 2		x	x	Lab	2	2	2	2	1	1
CHEM 5420	Org Spectroscopy	x			Lec	2	3	0	2	0	1
CHEM 5430	Carbohydrates	x			Lec	3	3	0	2	2	1
CHEM 52XX*	Neurotransmitters	x			Lec	3	3	0	2	2	2
CHEM 2210	Anal Chem 1		x	x	both	2	2	2	2	1	2
CHEM 2210H	Hnrs Anal Chem 1		x	x	both	2	2	2	2	2	2
CHEM 4870	Anal Chem 2			x	both	3	3	3	0	0	3
CHEM 4880	Instr. Analysis			x	Lab	0	3	3	3	2	3
CHEM 2990*	Prof Dev	x			Lec	0	0	0	3	3	0
CHEM 4300	P Chem 1			x	Lec	3	3	0	0	0	2
CHEM 4310	P Chem 2			x	Lec	3	3	0	0	0	2
CHEM 4410	P Chem Lab		x	x	Lab	0	3	3	3	3	2
BIOCHEM 5721	P Biochem 1		x		Lec	3	3	0	0	0	2
BIOCHEM 5722	P Biochem 2		x		Lec	3	3	0	0	0	2
BIOCHEM 4511	Intro Biochem	x			Lec	3	2	0	2	1	0
BIOCHEM 5621	Biochem Lab	x			Lab	3	3	3	3	2	1
CHEM 3510	Inorg Chem			x	Lec	3	2	0	0	0	3
CHEM 4550	Inorg Lab	x			Lab	3	3	3	3	0	3
CHEM 4998/98H	Research	x			Lab	3	3	3	2	3	3
CHEM 4999/99H	Thesis Research	x			Lab	3	3	3	3	3	3
CHEM 5440	Computational	x			Lec	3	3	3	3	3	3
CHEM 5520	Nanochemistry	x			Lec	3	3	0	3	3	3
CHEM 5240*	Protein Modeling	x			Lec	3	3	3	3	3	3

*Courses in red are the new courses we were hoping to get approved by Spring 2018