General Education Course Information Sheet

Please submit this sheet for each proposed course

Department & Course Number Chemistry and Biochemistry 98Ta

Course Title Public Perceptions of Science and Technology

1 Check the recommended GE foundation area(s) and subgroups(s) for this course

Foundations of the Arts and Humanities	
• Literary and Cultural Analysis	
• Philosophic and Linguistic Analysis	
• Visual and Performance Arts Analysis and Practice	
Foundations of Society and Culture	
• Historical Analysis	x
• Social Analysis	x
Foundations of Scientific Inquiry	
• Physical Science	x
With Laboratory or Demonstration Component must be 5 units (or more)	
• Life Science	x
With Laboratory or Demonstration Component must be 5 units (or more)	

2. Briefly describe the rationale for assignment to foundation area(s) and subgroup(s) chosen.

This course is designed to introduce students to reading and interpreting scientific articles and how those findings are portrayed in mainstream media. Dissection of the primary literature will teach students how to identify the hypothesis, understand scientific rationale and experimental design, as well as introduce them to a variety of biochemical techniques currently utilized by scientists. Their research papers will span a variety of topics including, but not limited to: recent scientific discoveries and the impact on society, disconnect between mainstream media and scientific data, how science is represented in different countries, and the impact of research misconduct on our current scientific knowledge.

3. List faculty member(s) who will serve as instructor (give academic rank):

Maria Dzialo (teaching fellow)/Steven Clarke (faculty mentor)

4. Indicate when do you anticipate teaching this course:

2014-2015	Winter Enrollment		Spring Enrollment	x

GE Course Units **5**

5. Please present concise arguments for the GE principles applicable to this course.

❑ General Knowledge	This course will go over basic science necessary to understand the slightly more complex information in the papers we will read. Several experimental techniques will be discussed while exploring current scientific literature, exposing students to the basics of the scientific method.
❑ Integrative Learning	Students will have the opportunity to complete a research project focusing on public awareness and understanding of scientific knowledge. They will use primary literature searches and collect real data to synthesize a coherent report on the connections to mainstream media and society. They will also participate in group discussions to explore other scientific approaches and present their findings in a final oral presentation.
❑ Ethical Implications	Critical dissection of scientific literature provides an opportunity to discuss research ethics. Students will learn about performing proper controls and statistical analysis that provides the foundation for ethical research. Additionally, examination of how scientific findings are represented will bring up questions of ethics.
❑ Cultural Diversity	We will discuss how science is viewed and reported in different countries. The topics that are frequently reported on are reflective of what is important to different societies.
❑ Critical Thinking	Scientific literature is packed with figures and tables that require careful examination and dissection to fully understand. Weekly reading assignments and written summaries will help student practice this while allowing them to express their own thoughts and hypotheses about the research.
❑ Rhetorical Effectiveness	Weekly writing assignments and the final research paper will give students the opportunity to discuss their findings in writing. The final presentation will help them practice delivering the information orally.
❑ Problem-solving	Exploring the current understanding of their assigned disease alongside the group discussions will help students recognize where the information gaps are. After discussing the types of methods that can be utilized, students will be able to propose experiments to fill these gaps.
❑ Library & Information Literacy	The final research paper will require independent literature searches to find papers that support their arguments. I will also be utilizing some of the research guides from the UCLA library.

(A) STUDENT CONTACT PER WEEK (if not applicable write N/A)		
1. Lecture:	**1.5**	(hours)
2. Discussion Section:	**1.5**	(hours)
3. labs	**n/a**	(hours)
4. Experiential (service learning, internships, other):	**n/a**	(hours)
5. Field Trips:	**n/a**	(hours)
(A) TOTAL Student Contact Per Week	**3**	**(HOURS)**

(B) OUT-OF-CLASS HOURS PER WEEK (if not applicable write N/A)		
1. General Review & Preparation:	**2.5**	(hours)
2. Reading	**3.5**	(hours)
3. Group Projects:	**3**	(hours)
4. Preparation for Quizzes & Exams:	**n/a**	(hours)
5. Information Literacy Exercises:	**n/a**	(hours)
6. Written Assignments:	**4**	(hours)
7. Research Activity:	**n/a**	(hours)
(B) TOTAL Out-of-class time per week	**13**	**(HOURS)**
GRAND TOTAL (A) + (B) must equal at least 15 hours/week	16	**(HOURS)**

Chemistry 98Ta:

Science in the Media and Society

Introduction

Scientific discoveries are made every day. As the number of new drugs, stem cell breakthroughs, cancer therapies, and genetically modified organisms increase, so does the public awareness of these findings. Additionally, the sci-fi genre of books, television, and movies has also grown in popularity, bringing the excitement of scientific endeavors into our everyday lives. However, not all mainstream media accurately describes these scientific findings. Several headlines exaggerate or misinterpret the actual data and often crime shows embellish the scientific process. This course aims to have students compare what information is provided in the media with that found in the actual scientific publication. Students will learn how to interpret journal articles and develop scientific writing skills. Independent research projects will explore the effects of science representation on public awareness and understanding.

Requirements/Grading:

Participation: 15%
Weekly reading summaries: 10%
Journal Club: 15%
Outline/Proposal: 10%
Proposal Peer Review: 10%
Individual Meeting: 5%
First draft of research paper: 10%
Final draft of research paper: 25%

Assignments:

1. *Weekly reading summaries*
   Each week find a news article about science and find the corresponding scientific study related to the follow week's discussion topic. Write a 1-2 page summary of the paper summarizing what the article stated and discuss the findings that supported those statements. Was the article accurate? Did it draw conclusions not supported by the data? How might this give the public the wrong idea about where science stands? How would you change the description of the findings?

2. *Journal Club*
   There will be two seminars devoted to paper discussion and analysis. For the first Journal club, each student will present articles from their weekly reading summaries and their interpretations

to the class. The second Journal Club will be presentations of research project findings.

3. *Research projects/reports* – Students will pick a science/technology topic of interest to them and explore the representation of those findings in public media. These projects can be literature research or field research based. Students will propose their idea with an outline (1-2 pages)early in the quarter and undergo a peer review process . Individual meetings will allow them an opportunity to discuss and develop their ideas and plans with the instructor. A first draft (3-5 pages) will be turned in followed by a final draft (5-10 pages)

Weekly Topics and Assignments:

Week 1: Anatomy of a paper – how to read and understand scientific literature

One of the major difficulties students face in understanding how scientific knowledge is created is understanding how to dissect the primary literature. Very few students receive any training in this arena and so the seminar will start with an introduction to the components of a scientific article as well as how to pull out the important information. We will also discuss the importance of experimental design, controls, and statistics. This will serve as the groundwork for the assigned readings and weekly writing assignments throughout the seminar and get students to start thinking like scientists.

Week 2: Science News and Reviews.

This week we will discuss the differences between research papers and review articles as well as mainstream media articles.

Assignment: Weekly reading summary #1 – find an article related to science and technology on Google Science News and look up the correlating research article. Compare and contrast.

Week 3: Journal Club 1

Students will present their selected reading summary articles and discuss their observations and interpretations.

Assignment: Weekly reading summary #3 – start exploring topics of interest for research projects

Week 4: Developing Research Questions

We will discuss and propose various facets of potential research topics. In the following weeks,

we will explore these topics more in-depth.

Assignments: Weekly reading summary #3. Choose a research topic and develop outline/proposal.

Week 5: Retraction Watch and Research Misconduct

One of the growing problems in scientific research is research misconduct. There are several retractions and corrections to scientific articles every week. We will discuss the definitions of research misconduct, statistical analysis of data, and some case studies of misconduct.

Assignments: Proposals due. Weekly reading summary #4. Start rough draft. Peer review of proposals

Week 6: Technology

Technology is integrated into our everyday lives and scientific research sometimes hinges on instrumentation. The rapid rate of technological advances changes our perceptions on both a social and scientific level. This week we will discuss how technology affects us daily and on a long term basis.

Assignments: Peer review due. Weekly reading summary #5. Work on rough draft.

Week 7: Health and Medicine

Topics this week will cover the ever changing perspectives on human health and medicine. What foods are good for us? Which should we avoid? Do nutraceuticals and vitamin supplements really work? We will explore how information regarding health and medicine is dispersed to the general public and whether or not we are receiving all the facts.

Assignment: Weekly reading summary #6. Finalize rough draft.

Week 8: Advertisements (drugs, technology, health, diet…)

Advertisements sometimes hide the fine print about the real science behind the product. We will discuss how these hidden messages would change our perspectives and why this may be good or bad for society in the long run.

Assignments: Weekly reading summary #7. Rought drafts due.

Week 9: TV/Movies and Creative Leaps

Science fiction and crime shows are more popular than ever. As a result, students are increasingly drawn to science and engineering careers. This week we will discuss why this genre may have grown in popularity, how perspectives of what the future would be like has changed over time, and how Hollywood has helped make science exciting for everyone!

Assignment: Weekly reading summary #8. Work on Final draft

Week 10: Journal Club 2

Students will present on their research projects.

Finals week: Final paper due

Syllabi

New Course Proposal

Chemistry & Biochemistry 98TA
When Good Proteins Go Bad: Protein Synthesis and Human Disease

Course Number Chemistry & Biochemistry 98TA

Title When Good Proteins Go Bad: Protein Synthesis and Human Disease

Short Title PROTN&HUMAN DISEASE

Units Fixed: 5

Grading Basis Letter grade only

Instructional Format Seminar - 3 hours per week

TIE Code SEMT - Seminar (Topical) [T]

GE Requirement Yes

Major or Minor Requirement No

Requisites Enforced requisite: satisfaction of Entry-Level Writing requirement. Freshmen/sophomores preferred.

Course Description Seminar, three hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Freshmen/sophomores preferred. Exploration of how cells synthesize proteins and newly emerging category of human diseases that resilt from defects in protein machinery known as ribosomopathies. Critical dissection of primary research literature to gain greater insight into way proteins function and how to study what happens when good proteins go bad. Letter grading.

Justification Part of the series of seminar offered through the Collegium of University Teaching Fellows.

Syllabus File *Chemistry 98Ta syllabus.pdf* was previously uploaded. You may view the file by clicking on the file name.

Supplemental Information Professor Steven Clarke is the faculty mentor for this seminar.

Grading Structure Participation: 15% Weekly reading summaries: 10% Paper discussion: 15% Literature list: 5% First draft of research paper: 10% Final draft of research paper: 25% Final presentation: 20%

Effective Date Spring 2015

Discontinue Date Summer 1 2015

Instructor

Name	Title
Maria Dzialo	Teaching Fellow

Quarters Taught ☐ Fall ☐ Winter ☐ Spring ☐ Summer

Department Chemistry

Contact

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CATHERINE GENTILE	cgentile@oid.ucla.edu

Routing Help

ROUTING STATUS

Role: Registrar's Office
Status: Processing Completed

Role: Registrar's Publications Office - Hennig, Leann Jean (LHENNIG@REGISTRAR.UCLA.EDU) - 56704
Status: Added to SRS on 8/5/2014 4:47:41 PM

Changes: Requisites, Description
Comments: Edited course description into official version; corrected requisites.

Role: Registrar's Scheduling Office - Thomson, Douglas N (DTHOMSON@REGISTRAR.UCLA.EDU) - 51441
Status: Added to SRS on 7/1/2014 6:33:01 PM
Changes: Short Title
Comments: No Comments

Role: L&S FEC Coordinator - Castillo, Myrna Dee Figurac (MCASTILLO@COLLEGE.UCLA.EDU) - 45040
Status: Returned for Additional Info on 6/5/2014 3:44:36 PM
Changes: No Changes Made
Comments: Routing to Doug Thomson in the Registrar's Office.

Role: FEC Chair or Designee - Palmer, Christina (CPALMER@MEDNET.UCLA.EDU) - 44796
Status: Approved on 6/4/2014 6:12:52 PM
Changes: No Changes Made
Comments: No Comments

Role: FEC Chair or Designee - Castillo, Myrna Dee Figurac (MCASTILLO@COLLEGE.UCLA.EDU) - 45040
Status: Returned for Additional Info on 6/2/2014 4:11:46 PM
Changes: No Changes Made
Comments: Routing to Christina Palmer for FEC approval.

Role: CUTF Coordinator - Gentile, Catherine (CGENTILE@OID.UCLA.EDU) - 68998
Status: Approved on 5/30/2014 12:24:52 PM
Changes: No Changes Made
Comments: on behalf of Professor Kathleen L. Komar, chair, CUTF Faculty Advisory Committee

Role: Initiator/Submitter - Gentile, Catherine (CGENTILE@OID.UCLA.EDU) - 68998
Status: Submitted on 5/30/2014 12:22:54 PM
Comments: Initiated a New Course Proposal

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Comments or questions? Contact the Registrar's Office at
cims@registrar.ucla.edu or (310) 206-7045