

Grant Writing and Ethics Course
FST/CHEM/VMBS 5094
Spring 2008

General Information:

Instructor: Susan E. Duncan
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Office Hours: By appointment
Class Time: 1:25-4:00
Class Room: ChemP 400

Co-Instructor: Janet B. Webster
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Required Textbooks

- Shamoo, A. E. and D .B. Resnik. 2009. *Responsible Conduct of Research*. Oxford University Press, NY.
- Anonymous. 1995. *On Being a Scientist. Responsible Conduct in Research*. National Academy Press, Washington, D.C. (*Provided by MILES Program*)
- Fretz, T. A., J. S. Angle, and Z. R. Helsel. 2005. *Principles of Grantsmanship. Manual for Writing and Organizing Competitive Grant Proposals*. University of Maryland, College Park, MD.

Supporting Resources:

- Course Web Site on Blackboard
- NSF Website: <http://www.nsf.gov>
- Grants.gov Website: <http://www.grants.gov>
- NIH Website "All About Grants": <http://www.niaid.nih.gov/ncn/grants/default.htm>

Course Description:

Welcome to the Macromolecular Interfaces with Life Sciences (MILES) Grant Writing and Ethics course! The two main goals of this course are to: 1) teach you the steps to writing a clear and concise multidisciplinary grant proposal for submission to a funding agency; and 2) to expose you to various ethical dilemmas that can occur while conducting research in academia and industry.

The course content will primarily focus on the grant writing process and will encompass the multidisciplinary nature of the Macromolecular Interfaces with Life Sciences (MILES) program (<http://www.chem.vt.edu/milesigert>). The grant writing tasks are designed to help you develop a research idea, develop that idea into a clear working plan, and to familiarize you with the required pieces needed to write a complete grant proposal. This course is structured to give you practical experience with recognizing and writing the key components of a multidisciplinary grant and be better prepared for working in a team environment. The second but very important portion of the course content will focus on ethical dilemmas that arise with research in academia and industry. Our ultimate goal is to familiarize you with the process of grant writing so you will be able to prepare to write successful grants when you enter your first job and to enhance your awareness of ethical issues that arise when writing grants and conducting research.

The proposal development, preparation, and final product are based on a multidisciplinary team approach. Each student will be responsible for some individual assignments, but the final

proposal will be generated by the collective and cooperative effort of the team. Your team will be required to work with MILES faculty to support the process with discussions of your ideas and guidance in the development of the ideas.

Honor Code:

The Virginia Tech Honor Code for academic integrity is the foundation of this course. Adoption of the Graduate Honor Code requires that all graduate students exercise honesty and ethical behavior in all their academic pursuits here at Virginia Tech, and, consequently, is applied to all aspects of your coursework.

Disabilities Statement:

If anyone needs special accommodations due to a disability, please contact me via telephone, electronic mail, or meet with me during office hours, or before or after class. I will do my best to meet your needs.

Grant Writing Training Session: You are required to attend three additional training sessions (approximately 6 hrs total) offered through the VT Faculty Development Institute to learn additional information about preparation of proposals. These sessions must be completed by March 16, 2009 for you to receive credit for participation. You may choose from the following topics but each team must have at least one team member participate in each session. You must enroll for each selected session

(<http://www.fdi.vt.edu/spring/2009/tracks/trackR.php#Grants>) and may do so immediately to guarantee that you get a seat. The course track instructor should sign the assignment form, The topics to select from include:

- Writing Successful Grants – Part I: Session times:
 - February 5, 2009, 3-5 pm, 3060 Torgersen Hall
 - February 24, 2009, 10-12 am, 1120 Torgersen Hall
- Writing Successful Grants – Part II: Session times:
 - February 12, 2009, 3-5 pm, 3060 Torgersen Hall
 - March 3, 2009, 10-12 am, 1120 Torgersen Hall
- Finding Funding: Using Online Databases to Locate Sponsors
 - February 19, 2009, 3-5 pm, 3060 Torgersen Hall
- Building the NSF Grant
 - February 20, 3-5 pm, 3060 Torgersen Hall
- Building the NIH Grant
 - February 27, 3-5 pm, 3060 Torgersen Hall

Institutional Review Board Training and Certification in Human Subjects and Awareness of Use and Care of Animals in Research.

Each student is required to complete the training certification for either the Institutional Review Board Human Subjects Training or an Animal Care and Use (ACU) Training (Working with the IACUC: Non-VA Version). These training modules are available through on-line instruction and can be easily completed within a few hours. You review the documentation and take a quiz. If you successfully complete the quiz, then you are provided with a certificate. You will find this information at <http://www.irb.vt.edu/>, (Human Subject Training or the Training Tab) or <http://www.acc.vt.edu/ACCTraining.html>. You must complete this training within the first 2 weeks of class in order to receive the certificate by the course deadline of Feb. 16.

Course and Assignment Schedule

	Topics and Tasks	Proposal Tasks Due	Ethics Readings/ Assignments Due
Jan. 26	<ul style="list-style-type: none"> • Introductions and Overview • Describe federal granting agencies and types of grants • Parts of the proposal • Discuss targeted call for proposals - Group discussion on project ideas 	<p>Contact Info</p> <p>Task #1 assignment: ID topic ideas related to the targeted call for proposals (individual assignment)</p> <p>Task #7 assignment: Attendance at Grant Writing Training Sessions</p>	
Feb. 2	<p>No Class</p> <p>Required Activity: complete on-line training in human subjects or the animal use and care training web site. See required training sessions note.</p>		*Ethics Assignment 1: Overview of Human Subjects and Animal Care Research Policies at Virginia Tech.
Feb. 9	<p>“The Team”</p> <p>Part 1. Personality and Leadership...Guest lecturer, Dr. Judith Jones</p> <ul style="list-style-type: none"> • Myers-Briggs Type Indicator assessment • Leadership for the team environment <p>Part 2. Developing Your Proposal Team (Dr. Duncan)</p>	Task 1 due	*Read Shamoo and Resnik, 2009. Ch. 9.
Feb. 16	<p>Grant writing activity:</p> <ul style="list-style-type: none"> • Present project ideas and discuss. • Learn how to write specific aims/objectives <p>Identifying team partners</p>	Task #2 assignment: Identify project ideas for the team	<p>*Ethics #1 due.</p> <p>*Read Shamoo and Resnik, 2003. Ch. 1 and Ch. 12</p> <p>*Ethics #2 Assignment: Case study from Ch 12.</p>
Feb. 23	<p>“Peer Review, Ethics in Science, and How Science Really Works”.</p> <ul style="list-style-type: none"> • Case study discussions <p>“Conflicts of Interest and Scientific Objectivity”</p> <ul style="list-style-type: none"> • Case study discussions <p>Team meetings (30 min) with instructors (2:30-4:30)</p>	<p>*Task 2 due.</p> <p>*Task #3 assignment: Goals & Objectives & Grant Outline (draft-individual);</p> <p>*Task #4 assignment: Literature Review Outline (individual)</p>	*Ethics #2 due
March 2	Project Justification/Impact;	*Tasks 3 and 4 due. (cont. on next page)	*Read Shamoo and Resnik, 2003. Ch. 3.

	<p>“Collaboration in Research: Authorship, Resource Sharing, and Mentoring”.</p> <ul style="list-style-type: none"> Case study discussions 	<p>*Task #5 assignment: Goals & Objectives and Proposal Outline (team - final)</p> <p>*Task #6 assignment: Experimental Design (team)</p> <p>*Task #8 assignment: Research Plan/Project Description</p>	
March 9	No Class - Spring Break		
March 16	<p>“The Use of Animals in Research”.</p> <ul style="list-style-type: none"> Case study discussion <p>Team meetings (1/2 hr) with instructors (2:30-4:30)</p>	*Tasks 5, 6 and 7 due	<p>*Read Shamoo and Resnik, 2003. Ch. 10.</p> <p>*Ethics Assignment 3. Case study from Ch. 3.</p>
March 23	<p>Preparing the Proposal Budget</p> <ul style="list-style-type: none"> Budget Forms (internal (VT) and agency) Budget Justification <p>Preparing the supporting documentation and proposal summary</p> <p>Preparation for meeting with NSF Directors – professional behavior and presentation</p>	<p>*Task 8 due</p> <p>*Task #9 assignment: Budget, Forms & Budget Justification</p>	<p>*Ethics #3 due.</p> <p>*Read Shamoo and Resnik, 2003. Ch. 8.</p>
March 30	Meeting with “NSF Directors”	<p>*Task #10 due</p> <p>*Task 11 Assignment: Application Introduction (Summary) due</p>	Read Shamoo and Resnik, 2003. Ch. 6.
April 6	“Academic and Industry Collaborations”, Dr. Tim Long, Dept. of Chemistry	<p>*Task 9 due</p> <p>*Task # 11 due</p> <p>*Task 12 Assignment: Peer review of other teams proposals</p>	
April 13	Working day		Ethics #4 due (Ch. 10)
April 20	“Intellectual Property” Peer panel review of proposals	*Task 12 due	
April 27	Working day		Ethics #5 due (Ch. 8)
May 4	<p>Team discussion with instructors</p> <ul style="list-style-type: none"> Discuss presentation slides and expectations 	Task 13 (final complete proposal) due – 4 hard copies	
May 7	Grant Proposal Presentations and Panel Review; 1:30-5:00 p.m.;	Location TBA	

Evaluation Plan:

Assignments are due electronically (drop-box) on the due date by 12:00 pm (noon).

Task	Grant Proposal Tasks/Components & Ethics Assignments	Due Date	Points Toward Final Grade
Setting the Stage for the Grant Proposal			
1	Identify 3 potential research topic ideas (individual assignment)	Feb. 9	5
2	Identify team research topic (team)	Feb. 23	5
3	Goals and objectives and proposal outline (draft) (individual)	March 2	5
4	Literature Review Outline (individual)	March 2	10
5	Goals and objectives and proposal outline (final) (team)	March 16	10
6	Experimental Design Schematic (team)	March 16	5
7	Attendance at grant training sessions (individual)	March 16	20
8	Research plan/project description (team)	March 23	40
9	Budget Form & Budget Justification (team)	April 6	10
10	Meeting with "NSF Directors" (team)	March 30	45
11	Introduction (Summary) to the Application (draft) (team)	April 6	10
12	Peer review of team proposals (individual)	April 20	45
13	Final Grant Proposal (team)	May 4	75
14	Final Grant Proposal presentation (team)	May 7	25
Total points from grant writing: 310 (85 as individual; 225 as team)			
Ethics Assignments (Individual Assignments)			
	1. IRB Human Subjects or ACU Training Certification	Feb. 16	20
	2. Ethics Case Study (Ch. 12) (1-2 pages)	Feb. 16	20
	3. Ethics Case Study (Ch. 3) (1-2 pages)	March 23	20
	4. Ethics Reading Case Study (Ch. 10) (1-2 pages)	April 13	20
	5. Ethics Reading Case Study (Ch. 8) (1-2 pages)	April 27	20
Total points from ethics assignments: 100 (individual)			
Total points in class: (185 as individual; 225 as team)			410

Ethics Reading Summary/Case Study:

The objective of the ethics assignments is to reflect on the reading and consider your perspective of the topic in relation to your current position (graduate student) and future professional career. You need to be prepared to discuss the chapter reading in class for the appropriate topics.

- Case Study: After reading the assignment, select one case study from the "Cases for Discussion" from the chapter and prepare 1-2 pages (typed, double-spaced) of reflections on this case. Describe the issue or conflict and your viewpoint of reasonable and responsible choices or resolutions.