GRAD 5134 Topics in Interdisciplinary Research (3 credits)

Tuesday 2:00pm-4:15pm   GLC Room C

Course Description:

This course will address the characteristics, processes, and dynamics of interdisciplinary research teams which facilitate success, as well as strategies to manage conflict among research teams. The concepts will be applied throughout the semester, as students work in interdisciplinary teams to complete course assignments.

Text: Bennett, L.M., H. Gadlin, and S. Levine-Finley. 2010.

Collaboration and Team Science: A Field Guide, NIH, Bethesda MD

http://teamscience.nih.gov (Links to an external site.)Links to an external site.

Instructors (all office hours by appointment)**:**

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Learning Objectives:

(1) Discover one's strengths and weaknesses as they involve interdisciplinary research

(2) Engage in group activities with rotating members to learn and experience various aspect of team science and interdisciplinary research, including conflict resolution, diversity, and communications

(3) Develop communication skills in bringing one's own scholarship and expertise to a different audience or team member

(4) Synthesize concepts and skillset presented throughout the course by preparing a formal research proposal in an interdisciplinary team

Assignments

Workshop Activities – Some classes will be in the format of a workshop that covers an aspect of team science and interdisciplinary research (e.g., StrengthQuest workshop to identify top 5 personal "strengths") which will require work such as questionnaires or surveys to be completed before meeting in class. These assignments are required and will count towards your grades. These assignments may also include readings from the text (see above) or other materials to be posted on Canvas. Detail logistics including individual due dates will be announced in class and on Canvas.

Canvas Discussions – After each weekly class meetings students are required to post a short reflection on the Canvas Discussion board. Discussion prompts will be provided to help students reflect on what they have learned and experienced that week, but posts by students do not necessarily need to address the prompts specifically. Initial reflection posts are due 48 hours after the end of each class. After the initial weekly posts are made students will be able to read posts by their classmates. Responses and threaded discussions on other posts other than the students' own are highly encouraged and will be noted.

Blog Posts – Each student will be responsible for at least one blog post throughout the semester. The blog post will serve as a longer, more substantive reflection piece regarding each week's topic. In the beginning of the semester, student will sign up for a week/topic of their choosing. Student responsible for the blog post for that week will not be required to submit reflection posts on Canvas (see above), but they are still encouraged to participate in online discussions. Blog posts are similarly due 48 hours after each class. Further guidelines and instruction for blog posts will be provided separately.

"Raw Water" Project: A case study of the current "Raw Water" movement in assigned groups. Each group will be required to determine topics within the case study they would cover, and finally providing a class presentation in the format of their choosing (groups are encouraged to pick a format beyond traditional PowerPoint presentation) with within-group and class evaluation. Additional instructions will be provided elsewhere.

Interdisciplinary Proposal: Design a project to address a research gap requiring interdisciplinary expertise; the class group presentation should include a synthesis of literature (relevant background information) and a description of the project proposal (written proposal will be turned in, modeled after the NIH R21 format). A letter in intent (LOI) describing your topic will be presented in-class mid-semester. There will be further required check-in points going toward the end of the semester. Final written proposal due 4/17, and the oral class presentations will take place 4/24 (dates tentative). Assignment grading criteria:

- Review of relevant background information

- Study design
- Presentation – professionalism, relevance to course theme, involvement of team members
- Within group evaluation
- Class evaluation

Participation, Attitude, and Performance

This is not a traditional class. There are not very many lectures, technical homework, and other components students have come to expect from a class. Much of the experience in this class, both in the classroom and outside, is heavily dependent of the attentiveness, engagement, and participation from the students. Due to this, **attendance to the class physically is required, and excused absence must to communicated beforehand to the instructional team and be handled at a case-by-case basis.** Here, a statement from a syllabus from a similar class developed by Dr. Tom Martin (ICAT and computer science at VT) and others captures this course's expectation from students:

"You are expected to have an open attitude and a willingness to try new techniques, explore new ideas and listen respectfully to the opinions of everyone in the class (see VT Principles of Community below). Attitude should reflect our common interest in improving the world. Contributions to class discussions and enthusiasm to learn are clear manifestations of a good attitude. Performance is defined by the way in which you apply yourself to the assigned problems. Good performance will be measured by how persistently you pursue the best possible solution. The number of times you try an idea and fail will be viewed positively as an indicator of how you tried many ideas with an open mind. Additionally, your collaborative work is an indication of interdisciplinarity and integration of ideas. Your participation in a number of exercises and surveys throughout the semester will contribute to a thorough portrait of your work as a supportive and productive team member. Attitude and performance will account for [a significant portion] of your grade for the course." (Tom Martin *et al.*, Syllabus of "Interdisciplinary Design of Pervasive Computer Products", Fall 2012)

As noted below, participation will be a significant portion of grades in this class. This include in-class participation, as well as off-line participation in Canvas discussion and blog posts. **Due to this, usage of laptops and other electronic devices when not required to do so is greatly discouraged, and the instructors will ask students to put their devices away as they deem appropriate.**

Commitment from the Instructional Team

Likewise, members from the instructional team will adhere to the same principles the course expects of the students. The instructors will commit to remain engaged in class,

and be attentive to the discourse and other interactions that occur both in and outside of the classroom. Members of the instructional team will be available to meet outside of class by appointment to discuss questions, concerns, and other discussion related to concepts and assignments from the class.

Grades:
Attendance, participation (in class & online), and Involvement (workshop assignments)   15%
Blog Post 5%
Canvas Discussions 10%
"Raw Water" Group Project (include peer evaluation) 20%
Group Interdisciplinary Research Proposal 50%

Class Outline

Below is a summary of the planned activities for the semester. Note that the nature and order of the activities may change as appropriate pending speakers and staff availability. Important announcements about what to expect and required for each class meeting will be posted ahead of time via Canvas. Contact the instructional team for questions and concerns.

January:

- Overview of interdisciplinary research: "Why are we here? – Pete Vikesland"
- "Do What You Are" personality type workshop – Staff from Career and Professional Development
- Group dynamics exercises
- Guidelines on blogging

February:

- StengthQuest Workshop – Staff from Student Affairs Learning Partnership
- Conflict Management Workshop
- Diversity in steams and STEM
- "Raw Water" Group Project Presentation

March:

- Communicating Science Workshop .
- "Nutshell Games" pitch workshop and presentation
- Science and society: interdisciplinary beyond STEM
- Interdisciplinary research team proposal letter of intent presentations

April:

- Interdisciplinary research at work: faculty and student Q&A panel

- Ethical issues and concerns in team science
- Final group presentations of proposals
- Final reflections and course evaluations

Academic Integrity

The Graduate Honor Code establishes a standard of academic integrity. The code demands a firm adherence to a set of values and is founded on the concept of honesty with respect to the intellectual efforts of oneself and others. Compliance with the Graduate Honor Code requires that all graduate students exercise honesty and ethical behavior in all their academic pursuits at the university, whether these undertakings pertain to study, course work, research, extension, or teaching.

The Graduate Honor Code is administered by the Graduate School via the student-led Graduate Honor System (GHS). There are four (4) types of Honor Code Violations: 1.) Cheating, 2.) Plagiarism, 3.) Falsification, and 4.) Academic Sabotage. Instructors, GTAs, and students in a class are required to report all suspected Honor Code violation to the GHS where all investigative and judicial activities will be conducted by an independent body within the GHS comprised of students in a majority and some faculty. If found responsible of a violation, penalties to the offending student may include anywhere from GHS probation (non-permanent warning) up to dismissal from the university.

To learn more about the Graduate Honor System and the Honor code, visit these pages:

Introduction to the GHS http://graduateschool.vt.edu/academics/expectations/graduate-honor-system/ghs-introduction.html

The Graduate Honor System Constitution https://graduateschool.vt.edu/content/dam/graduateschool_vt_edu/graduate-honor-system/GHS_Constitution_2009-10.pdf

Special Needs

Students are encouraged to address any special needs or special accommodations with the instructor during the first two weeks of the semester, or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should contact the Services for Students with Disabilities office immediately (http://www.ssd.vt.edu/). Please contact members of the instructional team for any related discussions.

Virginia Tech Principles of Community

Virginia Tech is a public land-grant university, committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community. Learning from the experiences that shape Virginia Tech as an institution,

we acknowledge those aspects of our legacy that reflected bias and exclusion. Therefore, we adopt and practice the following principles as fundamental to our on-going efforts to increase access and inclusion and to create a community that nurtures learning and growth for all of its members:

- We affirm the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.
- We affirm the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, and mutual respect.
- We affirm the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.
- We reject all forms of prejudice and discrimination, including those based on age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status. We take individual and collective responsibility for helping to eliminate bias and discrimination and for increasing our own understanding of these issues through education, training, and interaction with others.
- We pledge our collective commitment to these principles in the spirit of the Virginia Tech motto of *Ut Prosim* (That I May Serve).

Course Summary:

Date	Details	
Thu Jan 18, 2018	Interdisciplinary Research Overview (1/16/18)	due
Thu Jan 25, 2018	Blogs and panel (1/23/18)	due
Fri Jan 26, 2018	Blog topic survey	due
Thu Feb 1, 2018	Personality Type (1/30/18)	
Thu Feb 8, 2018	StrengthsFinder Assessment	due
Thu Feb 15, 2018	Conflict management (2/13/18)	
Tue Feb 20, 2018		
Thu Feb 22, 2018	Raw Water Project Intra-group Peer Review	due
	Raw Water Project Reflections (2/20/18)	due
Fri Feb 23, 2018	Raw Water Project (Materials Upload)	due
Thu Mar 1, 2018	Quickfire and mid-semester reflection (2/27/18)	
Tue Mar 13, 2018	Letter of intent	due
Thu Mar 15, 2018	Bias and diversity (3/13/2018)	due
Thu Mar 29, 2018	Ethical Considerations in Interdisciplinary Research	
Mon Apr 2, 2018	Final Project Outline	due
Thu Apr 5, 2018	Communicating Science Pt. 1 (4/3/18)	due
Thu Apr 12, 2018	Communicating Science pt. 2 (4/10/18)	

Date	Details	
Tue Apr 17, 2018	Final proposal (written)	due
Mon Apr 23, 2018	Disciplines and interdisciplinarity (4/19/18)	du
Tue Apr 24, 2018	Final Project Presentation	du
Thu Apr 26, 2018	Final Project Intra-group Peer Review	due