

HUHI 6305: Creativity in Science, Technology, and Medicine

Syllabus

Spring 2010

Course Information

Fall 2009 Thurs 7:00–9:45pm (but see below)

Contact Information

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Office Location JO 5.708

Office Hours Tuesday/Thursday 1–2pm and by appointment.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

None.

Course Description

This course will examine three questions:

1. What is creativity?
2. What is the role of creativity in science and technology?
3. How can creativity be fostered and used to improve your life and make the world a better place?

The seminar will be undertaken in association with the lecture series on the same topic at the *Center for Values in Science, Technology, and Medicine*. Students will meet with speakers in class and will be required to attend the public lectures (6 throughout the semester). This will require some flexibility with meeting times, and seminar participants will be expected to attend all lectures and class meetings.

Student Learning Objectives/Outcomes

Students will engage with key texts and major scholars at the intersection of creativity and technoscience.

Students will develop their ability to think creatively and effectively about scientific and technological issues.

Students will learn about the nature of creativity from scientific and philosophical perspectives.

Students will reflect upon the role of creativity in scientific discovery and technological innovation.

Required Textbooks and Materials

- **Nancy Neressian (2008), Creating Scientific Concepts**
- Miller (2000) - Insights of Genius: Imagery and Creativity in Science and Art
- Bohm, On Creativity
- Creativity for Critical Thinkers by Anthony Weston
- How to Re-imagine the World: A Pocket Guide for Practical Visionaries
- Sternberg, "Implicit theories of intelligence, creativity, and wisdom"
- Hanna, "The Nature of Creativity in Whitehead's Metaphysics"

Readings provided by guest speakers TBA.

Schedule

On weeks with a guest speaker (below in bold), in addition to attending the public lecture at 7pm, students will be required to attend a discussion with the speaker from 10:30-11:30am. Two speakers will be visiting on a Wednesday rather than Thursday evening (marked with ! mark). Attendance is required for all sessions.

1. 1/14 - Intro, Sternberg paper
2. **1/21 - Simonton, Scientific Creativity: The Science and the Art**
- *Jonsson Performance Hall*
3. **1/28 - Neressian, How Do Scientists Think? Creative Processes in Conceptual Innovation** - *Jonsson Performance Hall*
4. **!2/3 - Crewdson** - *Horchow Auditorium, Dallas Museum of Art*
5. 2/11 - Bohm, On Creativity
6. **!2/17 - Csikszentmihalyi, Flow and the Quality of Life** - *Jonsson Performance Hall*
7. 2/25 - Creativity as Critical Thinking
8. 3/4 - Whitehead
9. **3/11 - Sternberg, Creativity is a Decision** - *Jonsson Performance Hall*
10. 3/18 - Spring Break

11. 3/25 - Miller

3/31 - Jane Kamensky - *History Inside Out: Ten Things Writing Fiction Taught Me About Crafting the Past* - Jonsson Performance Hall (Attendance strongly recommended.)

12. 4/1 - Creativity and Social Action

13. 4/8 - **D'Andrea, Engineering without Constraints** - *TI Auditorium: Erik Jonsson School of Engineering and Computer Sciences*

14. 4/15 - Student Choice

15. 4/22 - Student Choice / Presentations

16. 4/29 - Student Presentations

Grading Policy

Assignments

Class Participation Especially in interaction w/ speakers.

Speaker Responses (6) 300–500 word response to assigned readings, discussion, and lecture from each guest speakers, to be posted on course website.

Creative Project A creative project involving science, technology, and/or medicine, informed by the ideas of the course, relevant to a significant problem, and innovative in approach. (A term paper on creativity and science/technology may be substituted given permission of the Professor.) Includes a presentation of the project in the final weeks of class.

Evaluation Standards

The following is a clarification for the purposes of this course of UTD's official policy with respect to grading standards.

- An **A** grade indicates *excellent* work. **A** work has something to say and says it well. It displays a subtle and nuanced understanding of the texts, develops arguments clearly and effectively, and reflects insightfully on the course material. It often rises above other work in terms of creativity and sophistication, or it may add something valuable to the discussion that goes beyond merely fulfilling the letter of the requirements. Only few, minor mistakes are present.
- A **B** grade indicates *good* work, but with room for improvement. Such work displays a clear understanding of the text, develops arguments consistently with a clear aim, and is thoughtful and careful. The presence of serious errors must not impair the clarity of an argument or the overall understanding of a text. **B** work is in many ways successful, but lacks the sophistication or originality of **A** work.
- A **C** grade indicates *marginal* work. It shows a basically adequate understanding of the key parts of the text. Arguments aim at a central claim,

though they may rely on unsupported or insufficiently developed ideas. More serious errors may be present, so long as the central claims and basic understandings are not undermined.

- Work which deserves a grade less than **C** is considered *poor* and will display some of the following problems: it fails to show adequate understanding of the text; it fails to understand the assignment; it fails to articulate a coherent or adequate argument; it fails to reflect on the content of the course; it displays such pervasive grammatical errors as to be highly obscure in meaning.

+/- grades *will* be assigned, indicating work that goes a bit beyond or falls only somewhat short of the standards stated above.

Course & Instructor Policies

A Word About Note-Taking & Classroom Technology

Extensive note-taking in class is strongly discouraged, especially in those parts of class meetings that are not primarily lecture-based. Taking good notes is no guarantee of good performance in the course, and taking extensive notes can interfere with activities that make a greater contribution to your performance: listening, consulting the text, and participating in class discussion.

For this reason, there should be no reason to bring laptop or handheld computer to class. Doing so will be frowned upon, unless some special need requires it (in that case, speak to me privately about your concern).

Late Work / Make-up Exams

No late work or make-up exams will be allowed without consent of the professor *prior* to the due/exam date, except in situations where University policy requires it.

Class Attendance

While reading and writing are crucial parts of the course, the central philosophical activity is live discussion. While class will occasionally involve bits of lecture, this is merely an instrument to a more well-informed discussion. Attendance is thus considered **mandatory**.

Classroom expectations

You are expected to have read the assignments *before* class, and it would be to your benefit to also read them again after class. You are expected to bring *all* of the texts assigned for each day's class, and have them available to refer to. You are expected to listen respectfully to the professor and your fellow students, and participate in class discussions and activities.

Technical Support

If you experience any problems with your UTD account you may send an email to: assist@utdallas.edu or call the UTD Helpdesk at 972 883-2911.

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD printed publication, A to Z Guide, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Rules and Regulations, Series 50000, Board of Regents, The University of Texas System, and in Title V, Rules on Student Services and Activities of the university's Handbook of Operating Procedures. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391) and online at <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html>

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic Dishonesty, any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Copyright Notice

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials, including music and software. Copying, displaying, reproducing, or distributing copyrighted works may infringe the copyright owner's rights and such infringement is subject to appropriate disciplinary action as well as criminal penalties provided by federal law. Usage of such material is only appropriate when that usage constitutes "fair use" under the Copyright Act. As a UT Dallas student, you are required to follow the institution's copyright policy (Policy Memorandum 84-I.3-46). For more information about the fair use exemption, see <http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts. Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's Handbook of Operating Procedures.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY) disabilityservice@utdallas.edu

If you anticipate issues related to the format or requirements of this course, please meet with the Coordinator of Disability Services. The Coordinator is available to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Services to notify them of your eligibility for reasonable accommodations. Disability Services can then plan how best to coordinate your accommodations.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the Professor.