Social Ethics in Engineering
BIOE 420/BIOE 520
3 Credit Hour
Spring Term, 2009

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Office Hours: T 3:00-4:00; Th 9:00-10:00

Meeting time: MWF 10:00-10:50, Gleeson 200

Prerequisites: Upper-division or graduate standing in engineering

Revision date: 26 March 2009

Catalog Description
Examination of difference, power and discrimination in engineering education and practice.

Course Description and Format: This course will explore the ways interlocking systems of oppression impact our professional lives. People can differ in many ways (experiences, culture, color, etc.), and assigning a relative "value" to these differences leads to the establishment of hierarchical structures and thought. As a result, power imbalances have been built into our social, political and professional structures, such that people outside the "dominant culture" have become marginalized, or made to feel unable to effect change. Maintenance of these power imbalances in our engineering "culture" inhibits growth of the engineering profession into a diverse, cooperative community. We will examine experiences of diverse groups within engineering, including personal and social effects of oppression, internalization of oppression, and resistance. This process requires dialogue and welcomes difference of opinion. It also demands respect and active listening. Because many issues we explore will be controversial and personal, we must all work together to create a safe place where we can hear, support, and challenge one another as we search for ways to change ourselves and our profession.

Required Reading Material
- Articles handed out in class.
- Allan G. Johnson, *Privilege, Power, and Difference, 2nd Ed.*, New York, NY: McGraw-Hill Higher Education, 2006.

Learning Objectives
The goal of this course is to introduce students to the social constructs in our society, especially as they relate to engineering education and practice. Following this course, students should be able to:
1. Distinguish between difference and the social construction of difference;
2. Describe how trouble around difference is produced, specifically addressing individualistic and system approaches and "paths of least resistance;"
3. Oppression – Define and identify institutional cruelty as outlined by P. Hallie, and describe systematic oppression in terms of M. Frye's bird cage model;
4. Define and identify examples of "privilege" as outlined by P. McIntosh and A. Johnson;
5. Describe and provide examples of strategies used to deny the need for and to resist social change, as well as ways one can actively promote social change; and
6. Communicate (in written and oral form) the impact oppressive structures have on individuals as well as the engineering profession.

Course Grading: Letter option only (A-F).

Grade Weighting: Grades will be determined according to the following criteria:

- **Participation in course activities** **10%**

There will be several small group discussions occurring randomly throughout the term so you must come to class prepared, having done the required reading. For these assignments, you will be evaluated on a pass/no pass basis. This means that if you are present in class, are prepared and participate in the group, you will receive credit. If any one of these three criteria is not met, you will not receive credit. In addition, you will receive credit for attending sessions when a guest speaker is presenting or a video is shown.

- **Homework** **10%**

Homework will be assigned sparingly, used to promote critical thinking of material covered in class. Examples of assignments include article critiques, reflective questions, etc.

- **Short papers** **10%***

For the two writing assignments, you will earn the highest grade if you actively engage yourself in the question or material under consideration. I will grade your papers in part on the degree to which you have taken the matter seriously and given it your best shot in terms of sincerity, thoughtfulness and incorporation of the concepts we are learning in this course. The papers should be typed (times New Roman 11 point, 1.5-lines spaced) and approximately 3 pages in length.

* Students taking this course for undergraduate credit (BIOE 420) will receive 5% of their total course grade for each of the two papers. Students taking this course for graduate credit (BIOE 520) will receive 2.5% of their total course grade for each of the two papers. The remaining 5% of the final course grade of BIOE 520 students will be based on completion of an interview with an individual from an underrepresented group who is a practicing engineer.

- **Midterm exam I** **25%**

- **Midterm exam II** **25%**

- **Seminar attendance / Analysis of a video** **10%**

You are required to attend the seminar entitled "Engineering Justice" sponsored by the College of Engineering. It will be held at La Sells Center Auditorium on Monday April 20th, from 6:00 to about 8:30. After attending, you must write a 1 page summary of the event, including how the material relates to topics we have been covering in class and your response to the material (i.e. what did you think about the main message of the presentation?). Additionally, you must attend an additional event/seminar and prepare a similar summary. I will announce events/seminars that will be appropriate, and will certainly consider events that you may bring to my attention. You have one week from the presentation to turn in the summary. Note that you may choose to watch a selected film (on course reserve in the library) and submit a 1 page analysis of the film's content in lieu of attending the second seminar. Note that attendance of the COE sponsored seminar on April 20 is mandatory.

- **Final project** **10%**

Student teams will research and present a case that demonstrates the impact oppressive structures have on the engineering profession (i.e., how such structures influence design decisions, engineering culture and the professional environment, etc.)

Final performance percentage will be assigned a letter grade by the following scale:

100-94	A	74-76	C
90-93	A-	70-73	C-
87-89	B+	67-69	D+
84-86	B	64-66	D
80-83	B-	60-63	D-
77-79	C+	60<	F

Course policy on attendance, late work, etc.

I will not accept any late homework and will not allow make-up quizzes or class participation activities EXCEPT in the event of an emergency or illness. In the latter cases, you must notify me as soon as possible to discuss a time-line for making up the work. In most cases, you should be able to contact me before your absence (email is fine). It will be your responsibility to secure handouts and notes from the class periods you miss.

Academic honesty

I take the issue of academic honesty very seriously. You will be expected to conduct yourself in a professional manner. Academic dishonesty such as cheating will not be tolerated -- students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- cheating- use or attempted use of unauthorized materials, information or study aids,
- fabrication- falsification or invention of any information,
- assisting- helping another commit an act of academic dishonesty,
- tampering- altering or interfering with evaluation instruments and documents, or
- plagiarism- representing the words or ideas of another person as one's own.

For more information about academic integrity and the University's policies and procedures in this area, please refer to the Student Conduct web site at: http://www.orst.edu/admin/stucon/achon.htm and the section on Academic Regulations in the OSU Schedule of Classes.

Course Values Statement

I am dedicated to establishing an inclusive learning environment that values all students' experiences. Therefore, disrespectful and demeaning statements, attitudes, and behaviors based on age, ability, color/ethnicity/race, gender identity/expression, immigration status, marital/parental status, military/veteran's status, national origin, political affiliation, religious/spiritual beliefs, sex, sexual orientation, socioeconomic status will not be tolerated.

Statement Regarding Students with Disabilities

Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through SSD should contact SSD immediately at 737-4098.

Course Outline:

Week 1-2 Introduction
Who is the typical engineer?
In-class: Noting difference (statistics)

Why is our profession so homogeneous with regard to race, ethnicity and gender?
History of the engineering profession
Children in Americas Schools - film

It's hard to talk about
Johnson, *We're in trouble, 1-11*
In-class: Identification of "loaded" words

Difference and trouble around it
Johnson, *Privilege, power, and difference,12-21*
Paul Spickard, *The social construction of race*
Guest speaker – TBA

Individuals, systems and paths of least resistance
Johnson, *What it all has to do with us, 76-89*
In-class: Path of least resistance- So funny I forgot to laugh

Week 3 Institutional Cruelty
Hallie, *From Cruelty to Goodness*

Oppression
Frye, *Oppression*; Lorde, *There is no hierarchy of oppressions*; Young, *The Expanded Cage*

Week 4 Oppression
Pharr, *The Common Elements of Oppressions*
In-class: Defining terms

(Selected film: *The Way Home*)

Language matters

Weeks 5-6 Privilege
McIntosh, *White Privilege: Unpacking the Invisible Knapsack*
Jensen, *White people need to acknowledge benefits of unearned privilege*
Johnson, *Privilege, power, and difference, 21-40*
Johnson, *How systems of privilege work, 90-107*
In-class: Identifying privilege

Denial and Resistance
Johnson, *Getting off the hook, denial and resistance*
In-class: Getting recognized

What can we do?
Johnson, *What can we do? Becoming part of the solution*

Being an ally – panel

Weeks 7-10 How does all of this apply to engineering?

Professional culture
Schillo, *Toward a pluralistic animal science*
Panel of engineers and engineering students
Affirmative Action: Guest speaker – Anne Gillies, AAEO, OSU
Environmental justice; Urban renewal; The social value of BIOE; Pharmaceuticals

(Selected film: *Celilo Falls and the Remaking of the Columbia River*)