

PSYO 7701: RADIANT Seminar
Syllabus—Winter term, 2013–2014



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Rationale

This course is a component of the Rehabilitative and Diagnostic Innovation in Applied Neurotechnology (RADIANT) program at Dalhousie University. This program departs from traditional science training by placing a heavy emphasis on the process of *innovation* — identifying problems that represent real needs in society, and creating novel, neurotechnology-based solutions that not only work, but that can actually reach the people who can benefit from them, in a form they can use. The core goal of RADIANT is to *produce HQP who have proven skills in both neuroscience/neurotechnology, and the professional skills needed to work in clinical and industrial settings to design solutions that meet a real need and have the potential to be commercialized or otherwise make it into the hands of people who can benefit from the solutions.*

The RADIANT seminar is designed to provide training in:

1. Core scientific and technical aspects, and recent developments, of neurotechnology used in clinical diagnosis and treatment;
2. The basic pathology, clinical manifestations, diagnosis, and treatment of prevalent nervous system disorders to aid in needs-finding and solution-building;
3. Core professional skills including
 - Time and project management;
 - Personal effectiveness;
 - Clinical and research ethics;
 - Innovation and design thinking;
 - Commercialization.
4. The ability to communicate scientific information to scientific, journalistic, and lay audiences. Communication is an essential skill in science as in most areas of professional and personal life. This course is based on the premise that communication of scientific information must be accurate, but that it must also be convincing.

There is a difference between simply conveying information, and shaping the content and delivery of the desired information to the intended audience.

Prerequisite

Instructor's permission.

Learning Objectives

This course will build learners' skills in innovation and communication. At the end of this course, students should be able to:

- Demonstrate an understanding of neurotechnology and its applications to the diagnosis and treatment of nervous system disorders;
- Identify problems suitable for neurotechnology solutions, brainstorm solutions, and evaluate the feasibility of these solutions
- Manage their time, operationalize projects, and identify and achieve goals more effectively;
- Analyze an ethical issue raised by the use of neurotechnology in research or applied contexts, with reference to relevant ethical guidelines (e.g, the TCPS) and important legal precedents;
- Demonstrate the ability to effectively communicate with non-scientific audiences — including clinicians, patients, journalists, and lay people.

Evaluation Components

Because the content of this seminar will vary from term to term, the specific nature of the evaluation components will vary accordingly. In any given term, the final grade will be based on 3 assignments, plus a participation grade, each worth 25% of the final mark.

Participation

25%

This portion of the final grade will be divided by the number of seminars for the term, and equal weight will be placed on attendance and actively contributing to the discussions. The grade for each class will be assigned according to the rubric provided at the end of this syllabus. Absences will be excused only through written agreement of the instructor, and will typically require documentation such as a doctor's note.

Assignments

NEUROETHICS PRESENTATION

25%

A 1 hour, group-led discussion on a bioethics topic related to neurotechnology.

COMMUNICATION TO A NON-SCIENTIFIC AUDIENCE

25%

A 10 minute talk describing a research project the student has conducted. Grading will be according to the attached rubric. Students will deliver the talk 4 times throughout the term, and receive constructive feedback after each. Grading will be based on the final presentation as well as the amount of improvement from the first to last presentations.

SCIENCE OUTREACH

25%

Each individual (or small team) will plan and deliver a public outreach activity/event associated with Brain Awareness Week (March 10–18, 2014). This may take any number of forms such as a public lecture, a talk and demonstrations for a science camp, a patient group, a school class, etc.. For the purposes of evaluation this should be attended by the instructor.

Grading Scheme:

A+	90–100
A	85–89
A-	80–84
B+	75–79
B	70–74
B-	65–69
C+	62–64
C	58–61
C-	55–57
D	50–54
F	0–49

Reading List

Note: Only the starred readings are absolutely required; however all are highly recommended. Virtually all of them are available as Kindle books, which should save you money, space, shipping time, and trees. I did not get the bookstore to order them, so you'll have to use other sources (all are available through Amazon.ca, and doubtless Chapters/Indigo/Kobo as well). Many are also available as audiobooks (via iTunes or Audible.com), which allow you to get your reading in while doing other things like painting your living room or riding the bus. In many cases, having to do your homework may be a good excuse to get in some exercise or wash the dishes!

Allen, David (2002). *Getting Things Done: The Art of Stress-Free Productivity*. Penguin Books. 2h 14m audiobook.

Farah, Martha (Ed.) (2010). *Neuroethics: An Introduction with Readings*. MIT Press.

*Ferriss, Timothy (2007). *The 4 Hour Workweek (revised and expanded)*. Crown Publishers. 376 pp.; 13h audiobook.

Fried, Jason, and Heinemeier Hansson, David (2010). *ReWork*. 37 Signals Inc.. 271 pp.; 2h 50m audiobook.

Godin, Seth. (2010). *Linchpin*. Portfolio/Penguin. 236 pp.; audiobook 8h 25m (2h abridged version available).

Godin, Seth (2011). *Poke the box*. The Domino Project. 85 pp.; 2h 14m audiobook.

*Hseih, Tony (2010). *Delivering Happiness: A Path to Profits, Passion, and Purpose*. Business Plus. 8h 7m audiobook.

*Kawasaki, Guy (2011). *Enchantment: The art of changing hearts, minds, and actions*. Portfolio. 185 pp.; 4h 50m audiobook.

King, Stephen (2010). *On Writing: A Memoir of the Craft*. Scribner.

*Kelley, Tom (2001). *The art of innovation*. Doubleday. 295 pp..

Pressfield, Steven (2011). *Do the work*. The Domino Project. 99 pp.; 1h 25 m audiobook.

Reynolds, Gar (2011). *The naked presenter*. New Riders. 195 pp..

*Silvia, Paul. J. (2007). *How to write a lot*. APA Life Tools. 132 pp..

Tyson, William (2010). *Pitch Perfect: Communicating with Traditional and Social Media for Scholars, Researchers, and Academic Leaders*. Stylus Publishing. 190 pp..

Ziglar, Zig. (2002). *Goals: Setting And Achieving Them On Schedule* (audiobook). Simon & Schuster Audio/Nightingale-Conant. 4h 54m audiobook.

*Ziglar, Zig, and Godin, Seth. (2011). *Pick Four*. The Domino Project.

Schedule

Class	Date	Topic
1	Jan. 9	Part 1: Getting things done—time and project management Video: David Allen (22 min) Part 2: Goals Video: Zig Ziglar (15 min - look for parts 2 & 3)
2	Jan. 16	Part 1: Goal setting exercise Listening: <i>Goals</i> (Zig Ziglar) Part 2: Writing Reading: <i>How to write a lot</i>
3	Jan. 23	Part 1: Neurotechnology case studies EEG and brain-computer interfaces Part 2: Giving great presentations Reading: <i>The Naked Presenter</i>
4	Jan. 30	First Presentations With peer and instructor discussion and feedback
5	Feb. 6	What are companies about? What is entrepreneurship for? Reading: <i>Delivering Happiness</i> (Tony Hsieh)
6	Feb. 13	Clinical topics (guest speakers)
	Feb. 20	<i>Study break</i>
7	Feb. 27	Second Presentations
8	Mar. 6	Innovation Reading: <i>The Art of Innovation</i> (Kelley)
9	Mar. 13	Part 1: Neuroethics , topic 1 (4 students lead discussion) Part 2: Neuroethics , topic 2 (other 4 students lead discussion) Reading: <i>Neuroethics</i> (Farah), with additional material found by students
10	Mar. 20	Part 1: Building support for your project Reading: <i>Enchantment</i> (Kawasaki) Part 2: Getting money : Grant writing and other sources of support Readings: <i>The Art of Grantsmanship</i> (Kraicer) – will be posted on OWL
11	Mar. 27	Third presentations
12	Apr. 3	Entrepreneurship and lifestyle design Reading: <i>The 4 Hour Workweek</i>
13	Apr. 10	Part 1: Discussion: Entrepreneurship Reading: <i>ReWork</i> Part 2: Guest presentation: Volta
14	Apr. 17	Final presentations

Academic Honesty & Plagiarism

Dalhousie University defines plagiarism as *the presentation of the work of another author in such a way as to give one's reader reason to think it to be one's own*. Plagiarism is considered a serious academic offense which may lead to the assignment of a failing grade, suspension or expulsion from the University, or even the withdrawal of a degree previously awarded. Some examples of plagiarism are:

- The use of a paper purchased from a commercial research corporation or prepared by any person other than the individual claiming to be the author;
- Copying another student's work. You are free and indeed, encouraged, to work in groups on course assignments. However, each student will be graded individually (unless you are explicitly told otherwise, as in group assignments) and therefore each student is expected to write his or her own answers;
- Copying, without giving credit to the author, from another's published or non-published works, another's computer codes/programs, another's artistic or architectural works, another's scientific project, including material found on the internet;
- Copying a direct quotation from another source without indicating that it is a direct quote through the use of quotation marks and source page numbers;
- Submitting a piece of work for credit in more than one course without written permission of both course instructors;
- Submitting the same piece of work more than once in the same class, including in different years.

[Click here to view Dalhousie University's full policy on intellectual honesty online.](#)

Any suspected cases of academic dishonesty will be reported to the Senate Disciplinary Committee for review. Please do not hesitate to ask your instructor if you have any questions.

Student Accessibility Services

Students with disabilities are encouraged to register as quickly as possible at the Student Accessibility Services if they wish to receive academic accommodations. To do so please phone 494-2836, email access@dal.ca, drop in at the Mark A. Hill Accessibility Centre or visit their website www.studentaccessibility.dal.ca All forms are now available on their website.

Rubric For Participation Grading

0

Absent

1

Present, not disruptive. Tries to respond when called on but does not offer much. Demonstrates very infrequent involvement in discussion.

2

Demonstrates adequate preparation: knows basic case or reading facts, but does not show evidence of trying to interpret or analyze them. Offers straightforward information (e.g., straight from the case or reading), without elaboration or very infrequently (perhaps once a class). Does not offer to contribute to discussion, but contributes to a moderate degree when called on. Demonstrates sporadic involvement.

3

Demonstrates good preparation: knows case or reading facts well, has thought through implications of them. Offers interpretations and analysis of case material (more than just facts) to class. Contributes well to discussion in an ongoing way: responds to other students' points, thinks through own points, questions others in a constructive way, offers and supports suggestions that may be counter to the majority opinion. Demonstrates consistent ongoing involvement.

4

Demonstrates excellent preparation: has analyzed case exceptionally well, relating it to readings and other material (e.g., readings, course material, discussions, experiences, etc.). Offers analysis, synthesis, and evaluation of case material, e.g., puts together pieces of the discussion to develop new approaches that take the class further. Contributes in a very significant way to ongoing discussion: keeps analysis focused, responds very thoughtfully to other students' comments, contributes to the cooperative argument-building, suggests alternative ways of approaching material and helps class analyze which approaches are appropriate, etc. Demonstrates ongoing very active involvement.