

School for New Learning  
DePaul University

**SW 219 Neuroplasticity and the Aging Brain**

Course Syllabus

Winter 2018

Instructor:	Joseph C. Chen, Ph.D.	Tuesdays 5:45 to 9 PM (Jan. 2 – March 13)
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### **COURSE DESCRIPTION**

Almost everywhere we look in our society there is an ever-increasing focus and desire for youthfulness. The negative connotation that comes with aging is often associated with a general slowdown of mental and physical functioning. Although it is true that aging does ultimately result in the slowing of both physical movement and brain processing while increasing the risk of illness, are we all doomed as we age as the media portrays it? While slowing is absolutely normal, it is often not the death sentence that our culture likes to portray. In fact, with purpose, planning, and practice (the 3 P's), the adult brain can remain sharp, quick, and nimble through the elderly years. In this course, students will be introduced to the field of neuroplasticity, which is revolutionizing the way we understand the functioning power of the brain. Neuroplasticity, in simple terms, is the brain's ability to rearrange its connections and, therefore, its functions based on experiences. In other words, the brain has the capacity to literally change itself, based on experiences, to achieve positive results. The goals of this course are to understand how the brain works, examine its impact on our daily actions, study how neuroplastic principles can improve our quality of life in the adult years, discover the learning and adjustment potential of the brain, and apply the principles of the 3 P's. We will use numerous examples to understand the brain, including health, work, relational, and personal settings. Students will ultimately answer the question of whether they will have an aging or reengaging brain.

### **COMPETENCES**

**H-3-X: Can understand the key transitional phases specific to adult psychological development and its impact on work life and personal life.**

1. Articulates one or more theories or models related adult psychological development.
2. Identifies unique ways the theories or models intersect the working and personal lives of adults.

**S-2-C: Can describe, categorize, and explain development or change within physical or biological systems.**

1. Articulates the process by which change occurs in at least one physical or biological system, or
2. Describes the sequence of development or evolution in that system.
3. Analyzes the variations in the development or change of physical or biological

systems.

**S-2-X: Can understand and describe neuroplastic principles and its impact on personal life and health.**

1. Articulates the research behind neuroplastic principles and how neuroscience has evolved from earlier scientific thinking.
2. Can analyze how behavior and neuronal activity intersect in healthy and unhealthy lifestyles.

**FX: Written by student/faculty.** This competence allows students to create statements that meet their specific learning needs related to their Focus Area.

**LEARNING STRATEGIES AND RESOURCES**

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We will use a variety of strategies to begin to understand how neuroplasticity impacts the adult brain.

*Reading materials* are focused around a) understanding basic neurobiology and b) seeing how new theories and technologies are impacting our understanding of the brain through vignettes related to everyday people. We will utilize a required text (below) and supplemental readings (research studies, handouts, summary articles), which I will provide.

*Required Text:*

Doidge, N. (2007). *The brain that changes itself: Stories of personal triumph from the frontiers of brain science*. Penguin: New York.

*Class discussions* will be vital as we work together as a group to understand how our individual experiences shaped the way our brain works. The extent of participation will determine the quality of the course – thus students are encouraged to come prepared and to engage.

*Experiential exercises* will help students actively engage in neuroplastic and brain-based phenomena. These exercises will demonstrate how specific phenomena unfold as well as how specific strategies engage the brain for change.

*Reflective writing* will be used to facilitate synthesis and consolidation of learning. Class time will be used after a specific exercise or demonstration for students to gain insight into their own experience as well as the implications of their learning.

**LEARNING DELIVERABLES AND ASSESSMENT OF STUDENT LEARNING:**

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*Online Discussion Posts (25 points each)* – Weekly discussion points will be posted on D2L on the day after each class. The discussion points can vary and will be a question or an article that relates to our discussions. Students are expected to participate in these online discussions and post at least one comment with your thoughts/opinion by the designated due date every week. Students are highly advised to post early on so that an actual online discussion can occur. Students are encouraged to post more than once, as this will facilitate discussion during class as

well. Online posts will be graded based mostly on quality and depth of thought. Please use decorum, etiquette, and proper grammar in your posts. There is no minimum or maximum length requirement. You will be assessed on quality/depth of thought and grammar. Due: 1/9, 1/16, 1/23, 2/6, 2/20, 3/6

*Reflection Papers (150 points each)* – The purpose of these three papers is for students to consider the basics of neuroplastic research and how it applies to common life events as well as how they see its implications in their own lives. Reflection Papers are designed to help students apply the course material in a meaningful way. Students will be able to choose a topic of interest for each paper. These papers are due only for students taking the course for a second competence. Due: 1/30, 2/13, 2/27

Grammar	= 10 points
Depth and Quality of Thinking/Critical Thinking	= 30 points
Reflection Related to Course Material and/or Topic	= 55 points
<u>Reflection Related to Experience and/or Observations</u>	<u>= 55 points</u>
Total	= 150 points

*Final Project (300 points)* – The Final Project is the culmination of what you have learned in this course. The purpose is to assess how students 1) understand a particular area of their lives that has decreased in functioning, 2) relate it to the knowledge gained from this course, and 3) how neuroplastic ideas can improve the functioning by using the 3 P's. This Project will be quite reflective and the aim is to motivate students to *reengage* their brain for optimal performance. Students will be assessed by the depth and quality of their thinking process, their understanding of why their functioning area of interest has decreased, and their ability to determine strategies that can increase the functioning. Due: 3/13

Grammar	= 15 points
Quality/Depth of thinking process	= 45 points
Understanding of Area of Decreased Functioning	= 80 points
Understanding of Brain Science and Neuroplastic Principles Involved	= 80 points
<u>Strategies for Increased Functioning (3 P's)</u>	<u>= 80 points</u>
Total	= 300 points

#### *Attendance and Participation:*

Class attendance and participation is a necessary part of this course. Students who fail to attend more than 2 classes will receive a failing grade. If you foresee absences, please let me know ASAP, preferably at the beginning of the quarter and we will arrange for you to complete assignments. If an emergency arises, please contact me and we can discuss how to proceed.

#### *Late Work:*

Late submissions will be allowed two weeks past the due date. Submissions after two weeks will not be accepted and you will not receive credit for that assignment. If there are circumstances that preclude you from submitting within the two-week timeframe, please actively discuss with me.

**Overall Grading Scale:**

Attendance	= 100 points (10 points each)
Online Discussions (6 Total)	= 150 points (25 points each)
Reflection Papers (3 Total)	= 450 points (150 points each)
<u>Final Project</u>	= 300 points
<b>Total</b>	<b>= 1000 points</b>

A	= $\geq 93\%$	C	= 72% to <78%
A-	= 90% to <93%	C-	= 70% to <72%
B+	= 88% to <90%	D+	= 68% to <70%
B	= 82% to <88%	D	= 62% to <68%
B-	= 80% to <82%	D-	= 60% to <62%
C+	= 78% to <80%	Fail	= <60%

**COURSE SCHEDULE****Week One (January 2) - Introduction to the Brain**Required Readings Due:

- None

Homework Due:

- None

**Week Two (January 9) – How does the Brain Work?**Required Readings Due:

- Garrett. Bob. (2009). The Functions of the Nervous System. Pp. 52-82. in *Brain and Behavior: An Introduction to Biological Psychology*. Sage: Los Angeles.
- Select Online Videos

Homework Due:

- Online Discussion 1

**Week Three (January 16) – Lifespan Development and the Brain.**Required Readings Due:

- Donald Super's Career Development Model
- Daniel Levinson's Seasons of Life Theory
- George Vaillant's Task Theory
- Erik Erikson's Lifespan Model
- Biological Models

Homework Due:

- Online Discussion 2

**Week Four (January 23) – What is Neuroplasticity?**Required Readings Due:

- Chapter 1: A Woman Perpetually Falling...
- Nelson, C.A., de Haan, M., & Thomas, K.M. (2006). Neural plasticity. Pp. 30-43. in *Neuroscience of Cognitive Development: The Role of Experience and the Developing Brain*. Wiley: New Jersey.

Homework Due:

- Online Discussion 3

**Week Five (January 30) – The Learning Process**Required Readings Due:

- Chapter 2: Building Herself a Better Brain
- Chapter 3: Redesigning the Brain
- Rosenzweig, M. R., Bennett, E. L., & Diamond, M. C. (1972). Brain changes in response to experience. *Scientific American*, 226, 22–29.

Homework Due:

- Reflection Paper

**Week Six (February 6) – Love and Sexuality**Required Readings Due:

- Chapter 4: Acquiring Tastes and Love
- Bem, D. J. (1996). Exotic becomes erotic: A developmental theory of sexual orientation. *Psychological Review*, 103, 320-335.
- Simmons, D. (2008) Epigenetic influence and disease. *Nature Education* 1, 6
- Freud's Psychosexual Development

Recommended Readings:

- <http://www.whatisepigenetics.com/>
- <http://discovermagazine.com/2013/may/13-grandmas-experiences-leave-epigenetic-mark-on-your-genes>
- <http://www.pbs.org/wgbh/nova/body/epigenetic-therapy.html>

Homework Due:

- Online Discussion 4

**Week Seven (February 13) – Physical Health**Required Readings Due:

- Chapter 5: Midnight Resurrections

Homework Due:

- Reflection Paper

**Week Eight (February 20) – Mental Health**

Required Readings Due:

- Chapter 6: Brain Lock Unlocked
- Chapter 9: Turning our Ghosts into Ancestors
- Schwartz, J. (2003). Brain lock. In *The mind and the brain*.

Recommended Readings:

- <http://hope4ocd.com/foursteps.php>
- <http://www.nature.com/npp/journal/v33/n1/full/1301574a.html>

Homework Due:

- Online Discussion 5

**Week Nine (February 27) – Plasticity versus Rigidity.**

Required Readings Due:

- Chapter 7: Pain
- Ramachandran, V. (2005). Plasticity and functional recovery in neurology. *Clinical Medicine*, 5, 368-373.

Homework Due:

- Reflection Paper

**Week Ten (March 6) – Preparing for the Future with the 3 P’s.**

Required Readings Due:

- Chapter 10: Rejuvenation

Homework Due:

- Online Discussion 6

**Week Eleven (March 13) - No class.**

Homework Due:

- Final Project
- All questions/concerns must be addressed by today

**COURSE POLICIES:**

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Students are expected to be prepared to discuss readings and to actively participate in classroom and online dialogue and assignments. Students are expected to treat others with respect both in person and online. Students are welcome to use technology to take notes. Students are not allowed to audio- or video-record class sessions. While it is understandable that students may need to use mobile devices to deal with urgent personal situations, refrain from using mobile devices during class session.

This course includes and adheres to the college and university policies described in the links below:

[Academic Integrity Policy](#) (UGRAD)

[Academic Integrity Policy](#) (GRAD)

[Incomplete Policy](#)

[Course Withdrawal Timelines and Grade/Fee Consequences](#)

[Accommodations Based on the Impact of a Disability](#)

[Protection of Human Research Participants](#)

[APA citation format](#) (GRAD)

#### **Course Resources**

[University Center for Writing-based Learning](#)

[SNL Writing Guide](#)

[Dean of Students Office](#)

#### **INSTRUCTOR BIO**

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Joseph C. Chen is a member of the DePaul University faculty, serving as an Associate Professor in the University's School for New Learning. He earned his B.A. in Psychology from Wheaton College (IL) and completed his doctoral degree at Virginia Commonwealth University, obtaining both a M.S. and Ph.D. in Counseling Psychology. As part of his doctoral education, he completed both a predoctoral internship and a postdoctoral clinical fellowship at the University of California, Berkeley. A licensed clinical psychologist, he maintains his own private practice ([www.transformedgepc.com](http://www.transformedgepc.com)) and is part of a group practice ([www.harrisclinicalgroup.com](http://www.harrisclinicalgroup.com)). His research interests revolve around the change process, specifically focused on change with educative and acculturative contexts.