Course Title

Introduction to Cognitive Neuroscience

Course Number
PSYCH-UA 9025001

Instructor Contact Information
Carsten Finke
carsten.finke@nyu.edu

Course Details
Thursday, 15:00am – 17:45pm, NYU Berlin Academic Center, Room “Pankow” (tbc)

Prerequisites
PSYCH-UA 1 Introduction to Psychology or equivalent.

Units earned
4

Course Description
The aims of the course are to provide students with a broad understanding of the foundations of Cognitive Neuroscience including dominant theories of the neural underpinnings of a variety of cognitive processes and the research that has led to those theories. In doing so, students will also learn about the goals of Cognitive Neuroscience research and the methods that are being employed to reach these goals.

Course Objective
At the end of the course students will have knowledge about major Cognitive Neuroscience domains and current research in these areas.

Assessment Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best 2 of 3 Quizzes</td>
<td>25% each (50% total)</td>
</tr>
<tr>
<td>Presentation</td>
<td>10%</td>
</tr>
<tr>
<td>Literature Critique</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

Failure to submit or fulfill any required component may result in failure of the class, regardless of grades achieved in other assignments.
Exams:
There will be three in-class quizzes. Each quiz will be composed of three parts: 1) multiple choice; 2) short identifications; 3) one essay. There will sometimes be a choice for both the identifications and essays (e.g., answer 1 of the 2 essays). Your lowest quiz score of the 3 will be dropped. There will be a final exam that will be cumulative and similar in structure to the quizzes.

Literature Critique:
The goal of the critique is to get students to read original research articles with a focus on the methods used to investigate the question under consideration. Students must review two articles that address a common topic, but use two different methods (e.g., patient study and functional imaging study; single cell recording and patient study). The paper will be a maximum of 3-pages (double-spaced); I will stop reading at the end of page 3. Late papers will be penalized. A detailed description of the assignment will be provided later in the semester. It is highly recommended that students discuss their planned topic with the instructor at least 3 weeks prior to the due date.

Presentation:
Each student will present a paper in class – duration 15 minutes. The main point is to introduce students to reading and criticizing empirical research papers and to train presenting papers in a concise manner. The presentation should follow the structure of the paper, i.e. include an introduction to the topic, explain the methods, followed by results and discussion. The presenting student will prepare 3-5 questions about the paper to discuss in class. Students are expected to read the article that will be discussed before class in order to be able to participate in the discussion of the paper. All students are welcome to bring their own question for discussion.

Assessment Expectations

Grade A: The student makes excellent use of empirical and theoretical material and offers well-structured arguments in their work. The student writes comprehensive essays / answers to exam questions and their work shows strong evidence of critical thought and extensive reading.

Grade B: The candidate shows a good understanding of the problem and has demonstrated the ability to formulate and execute a coherent research strategy.

Grade C: The work is acceptable and shows a basic grasp of the research problem. However, the work fails to organize findings coherently and is in need of improvement.

Grade D: The work passes because some relevant points are made. However, there may be a problem of poor definition, lack of critical awareness, poor research.

Grade F: The work shows that the research problem is not understood; there is little or no critical awareness and the research is clearly negligible.

Grade Conversion
Your instructor may use one of the following scales of numerical equivalents to letter grades:

\[
B+ = 87-89 \quad C+ = 77-79 \quad D+ = 67-69 \quad F = \text{below 65}
\]
A = 94-100  B = 84-86  C = 74-76  D = 65-66
A- = 90-93  B- = 80-83  C- = 70-73

Alternatively:

A= 4.0   A- = 3.7
B+ = 3.3   B = 3.0   B- = 2.7
C+ = 2.3   C = 2.0   C- = 1.7
D+ = 1.3   D = 1.0   F = 0.0.

Attendance Policy

Participation in all classes is essential for your academic success, especially in courses that meet only once per week. Your attendance in both content and language courses is required and will be checked at each class meeting. As soon as it becomes clear that you cannot attend a class, you must inform your professor by e-mail immediately (i.e. before the start of your class). Absences are only excused if they are due to illness, religious observance or emergencies. Your professor or NYU Berlin's administration may ask you to present a doctor's note or an exceptional permission from NYU Berlin's Director or Wellness Counselor as proof. Emergencies or other exceptional circumstances must be presented to the Director. Doctor's notes need to be submitted to the Academics Office, who will inform your professors. Doctor's notes need to be from a local doctor and carry a signature and a stamp. If you want the reasons for your absence to be treated confidentially, please approach NYU Berlin's Director or Wellness Counselor.

Unexcused absences affect students' grades: In content courses each unexcused absence (equaling one week's worth of classes) leads to a deduction of 2% of the overall grade and may negatively affect your class participation grade. In German Language classes two or three (consecutive or non-consecutive) unexcused absences (equaling one week's worth of classes) lead to a 2% deduction of the overall grade. Three unexcused absences in one content course and five unexcused absences in your German language course may lead to a Fail in that course. Furthermore, your professor is entitled to deduct points for frequent late arrival or late arrival back from in-class breaks. Being more than 15 minutes late counts as an unexcused absence. Please note that for classes involving a field trip, transportation difficulties are never grounds for an excused absence. It is the student's responsibility to arrive in time at the announced meeting point.

Exams, tests and quizzes, deadlines, and oral presentations that are missed due to illness always require a doctor's note as documentation. It is the student's responsibility to produce this doctor's note and submit it to the Academics Office; until this doctor's note is produced the missed assessment is graded with an F and no make-up assessment is scheduled. In content classes, an F in one assignment may lead to failure of the entire class.

Attendance Rules on Religious Holidays

Members of any religious group may, without penalty, excuse themselves from classes when required in compliance with their religious obligations. Students who anticipate being absent due to religious observance should notify their lecturer AND NYU Berlin's Academics Office in writing via e-mail one week in advance. If examinations or assignment deadlines are scheduled on the day the student will be absent, the Academics Office will schedule a make-up examination or extend the deadline for assignments. Please note that an absence is only excused for the holiday but not for any days of travel that may come before and/or after the
holiday. See also http://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-calendar-policy-on-religious-holidays.html

**Late Submission of Work**

(1) Written work due in class must be submitted during the class time to the professor.

(2) Late work should be submitted in person to the lecturer or to the Academics Office, who will write on the essay or other work the date and time of submission, in the presence of the student. Another member of the administrative staff may also personally accept the work, and will write the date and time of submission on the work, as above.

(3) Work submitted late receives a penalty of 2 points on the 100 point scale for each day it is late (excluding weekends and public or religious holidays), unless an extension has been approved (with a doctor's note or by approval of NYU Berlin's administration), in which case the 2 points per day deductions start counting from the day the extended deadline has passed.

(4) Without an approved extension, written work submitted more than 5 days (excluding weekends and public or religious holidays) following the submission date receives an F.

(5) End of semester essays must be submitted on time.

(6) Students who are late for a written exam have no automatic right to take extra time or to write the exam on another day.

(7) Please remember that university computers do not keep your essays - you must save them elsewhere. Having lost parts of your essay on the university computer is no excuse for a late submission.

**Provisions for Students with Disabilities**

Academic accommodations are available for students with documented disabilities. Please contact the Moses Center for Students with Disabilities at 212-998-4980 or see their website (http://www.nyu.edu/life/safety-health-andwellness/students-with-disabilities.html) for further information.

**Plagiarism Policy**

The presentation of another person's words, ideas, judgment, images or data as though they were your own, whether intentionally or unintentionally, constitutes an act of plagiarism. Proper referencing of your sources avoids plagiarism (see as one possible help the NYU library guide to referencing styles: http://nyu.libguides.com/citations).

NYU Berlin takes plagiarism very seriously; penalties follow and may exceed those set out by your home school. Your lecturer may ask you to sign a declaration of authorship form.

It is also an offense to submit work for assignments from two different courses that is substantially the same (be it oral presentations or written work). If there is an overlap of the subject of your assignment with one that you produced for another course (either in the current or any previous semester), you MUST inform your professor.
For a summary of NYU Global's academic policies please see: www.nyu.edu/global/academic-policies

**Required Text(s)**

Books can be bought at Dussmann in Friedrichstraße 90, where the books are pre-ordered for students. Additionally, one copy of each book is kept in the Reading Room of NYU Berlin’s Academic Center, for you to read in the center but not to take out.

**Supplemental Text(s) (not required to purchase)**
Available on NYU Classes (alternatively: www.ncbi.nlm.nih.gov/pubmed; just enter the PMID)
- Karnath et al. The anatomy underlying acute versus chronic spatial neglect: a longitudinal study. PMID 21156661
- Ostendorf et al. Inhibition of visual discrimination during a memory-guided saccade task. PMID 14973318
- Janszky et al. Left-sided interictal epileptic activity induces shift of language lateralization in temporal lobe epilepsy: an fMRI study. PMID 16686658
- Feinstein et al. The human amygdala and the induction and experience of fear. PMID 21167712
- Sorger et al. Understanding the functional neuroanatomy of acquired prosopagnosia. PMID 17303440
- Geschwind et al. Alien hand syndrome. PMID 7723974

**Internet Research Guidelines**
n/a

**Additional Required Equipment**
n/a

**Week 1 – 02 Feb 2017**
**History and Principles of Neuroscience**
Gazzaniga, Chapter 1

**Session 2 & 3 – 9 Feb 2017: 1 hour longer + homework (= make-up for Session 3)**
**Gross Functional Neuroanatomy**
Gazzaniga, Chapter 2

**Methods of Cognitive Neuroscience**
Gazzaniga, Chapter 3

**Paper:** Karnath et al. The anatomy underlying acute versus chronic spatial neglect.

**Paper:** Bunge & Kahn. Cognition: An Overview of Neuroimaging Techniques
16 Feb 2017 --- No Class

Session 4 – 23 Feb 2017
Perception Gazzaniga, Chapter 5
**EXCURSION:** Virtual Reality Lab, Berlin School of Mind and Brain

Session 5 – 02 Mar 2017
Recognition Gazzaniga, Chapter 6
**QUIZ 1**
Literature Critique: Guide and Example
**Paper:** Sorger et al. Understanding the functional neuroanatomy of acquired prosopagnosia.

Session 6 – 03 Mar 2017 – 10.00-12.45 --- *(Make-up class for 23 Mar 2017)*
Attention Gazzaniga, Chapter 7
**Paper:** Ostendorf et al. Inhibition of visual discrimination during a memory-guided...

Session 7 – 09 Mar 2017
Motor Control Gazzaniga, Chapter 8
**EXCURSION:** Deep Brain Stimulation Lab, Charité - Campus Virchow-Klinikum

16 Mar 2017 – SPRING BREAK – NO CLASS

23 Mar 2017 --- No Class (make-up class on 3 Mar 2017)

Session 8 – 30 Mar 2017
Working Memory Gazzaniga, Chapter 12 (506-519)
**EXCURSION:** Brain & Behavior Lab, Charité Campus Mitte

Session 09 – 06 Apr 2017
Hemispheric Asymmetry Gazzaniga, Chapter 4
**QUIZ 2**
**Paper:** Geschwind et al. Alien hand syndrome.

Session 10 – 13 Apr 2017
Language Gazzaniga, Chapter 11
**Paper:** Janszky et al. Left-sided interictal epileptic activity induces shift of language lateralization in temporal lobe epilepsy: an fMRI study.
**Paper:** Hernandez et al. Language switching and language representation in Spanish–English bilinguals: An fMRI study
Session 11 – 20 Apr 2017
Learning & Memory Gazzaniga, Chapter 9
EXCURSION: MRI at BCAN, Charité Campus Mitte

Session 12 – 27 Apr 2017
Cognitive Control; Reward & Decision Making Gazzaniga, Chapter 12 (520-550)
VISITING GUEST: Ulf Toelch, Decision Making Lab
Literature Critique Due

Session 13 – 04 May 2017
Emotion Gazzaniga, Chapter 10

Session 14 – 11 May 2017
Review for Final Exam
QUIZ 3

Session 15 – 18 May 2017 --- Time: 10.00 – 12.45
FINAL EXAM

Classroom Etiquette
To be discussed in class.

Required Co-Curricular Activities
See above

Suggested Co-Curricular Activities
n/a

Your Instructor
Carsten Finke is head of the Cognition in Neurological Disorders Group at the Berlin School of Mind and Brain and Dept. of Neurology of Charité Berlin. Our research focuses on the clinical and cognitive neuroscience of memory and memory disorders. We are specifically interested in the pathophysiology of memory deficits in patients with inflammatory brain disorders affecting the medial temporal lobes, including viral and autoimmune encephalitis (e.g., herpes encephalitis or NMDA receptor encephalitis) and patients with paraneoplastic neurological syndromes. We use structural and functional MRI, neuropsychological assessments and psychophysiological measures to investigate the neural mechanisms of memory impairments in these disorders and to develop diagnostic and prognostic imaging biomarkers.