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Course Title

Perception

Course Number
PSYCH-UA 9022 D01

Instruction Mode: Blended

Fall 2020

If you are enrolled in this course 100% remotely and are not a Go Local/Study Away student for NYU Berlin, please make sure that you've completed the online academic orientation via NYU Classes so you are aware of site specific support structure, policies and procedures. Please contact berlin.academics@nyu.edu if you have trouble accessing the NYU Classes site.

Syllabus last updated on: 30-Aug-2020

Lecturer Contact Information
Dr. Sven Ohl

Your instructor will inform you about office hours.

Course Details
Tuesdays, 12:30pm to 1:45pm
Thursdays, 12:30pm to 1:45pm

All times are Central European Time (Daylight Saving Time ends Oct 25, 2020).

Location: Rooms will be posted in Albert before your first class.

Remote Participants: Your instructor will provide you with the Zoom link via NYU Classes.

Prerequisites
Prerequisite for NYU Students: PSYCH-UA 1 / Introduction to Psychology

Units earned
4

Course Description
How do we construct a conception of physical reality based on sensory experience? In this course, we will survey basic facts, theories, and methods in the study of sensation and

perception. The major emphasis is on vision and audition, but other modalities will also be covered in some detail. Representative topics include receptor function and physiology; color; motion; depth; psychophysics of detection, discrimination, and appearance; perceptual constancies; adaptation, pattern recognition, and the interaction of knowledge and perception.

Course Objective
The objective of this course is to help you master the fundamental facts and concepts of perceptual psychology and sensory neuroscience. This is an interdisciplinary field of science, crossing the boundaries between psychology, biology, physics, and engineering.

An effort is made, therefore, to present the main concepts of perception in a way that will introduce you to how scientific research is done and to stimulate your scientific curiosity. Some of the concepts covered in this course will be useful to you in various professions that you might pursue. For example, the perceptual problem of eyewitness accounts of crimes is of interest to the legal community; the physiology of animal sensory systems is of interest to the medical community.

Assessment Components
You are expected to attend class in person or remote synchronously. Failure to submit or fulfill any required component may result in failure of the class, regardless of grades achieved in other assignments.

The final grade will be composed of a weighted average, with the following weights assigned to individual assessment components:

15% Class Participation
15% Response Papers
35% Midterm exam
35% Final exam

Class Participation:
Students are expected to prepare each meeting by reading the specified material, to be present at all sessions of the course, to engage in and complete exercises and quizzes, and to actively contribute to discussions.

Response papers:
Response papers will summarize and discuss a scientific article (provided by the lecturer) on the general subject of Perception. I will give you a short list of prompts from which you can choose one ten days prior to the submission deadline, at the latest. PDFs will be online on NYU Classes. Response papers should be 2 pages long (A4, 2 cm margin on each side, double-spaced, Times New Roman, Font Size 12). They should summarize the method and the findings of the research paper, give at least one interpretation of the result und discuss potential follow-up studies. Papers must be submitted by midnight on the respective due date.

Exams:
In the middle of the semester (midterm) and in the last session of the semester (final), you will have exams. Both midterm and final exam will be oral exams that will be of 25 minutes duration. Students can choose a topic to talk about in the first 8 minutes of the exam.

Mini-quizzes:
We will have ungraded (and anonymous) mini-quizzes at the end of each session that will give you the opportunity to quickly let me know if some topic was unclear and needs some extra coverage. Please use this opportunity. If you must cram before an exam, please don't expect me to cram with you. In the days prior to an exam, I will be available as usual for office hours but not for extra time to help you catch up if you've fallen far behind. It would not be fair to your fellow students if you were to monopolize office hours and sessions for a long period of time right before an exam.

Required Text(s)
Electronic Resources (via NYU Classes / NYU Library)

Sensation and Perception (either 9th or 10th edition), E. B. Goldstein, Cengage Learning.

Copies of the book are available at NYU Berlin's Academic Center and can be loaned by the students.

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.

Please follow this link for the NYU Berlin Library Catalogue or the link on NYU Berlin's website (Academics/Facilities & Services).

Supplemental Text(s) (not required to purchase)
None.

Additional Required Equipment
None.

Session 1 – 3 Sep 2020
Introduction to Sensation and Perception, Part 1
(Challenges, Motivation to study Perception)
Required reading: None.

Session 2 – 8 Sep 2020
Introduction to Sensation of Perception, Part 2
(Challenges, Motivation to study Perception)
Required reading: Goldstein Chapter 1 (up to page 13).

Session 3 – 10 Sep 2020
Introduction to Physiology of Perception
(Anatomy, Neurons, Localization of function, Sensory code)
Required reading: Freeman, *Scientific American*, 1991.

Session 4 – 15 Sep 2020

Psychophysics and the Signal Detection Theory
(Psychophysical methods and their fundamental assumptions)
Required reading: Goldstein Chapter 1 (starting page 14)/Appendix

Session 5 – 17 Sep 2020
Optics of the Eye and the Retina, Part 1
(Transduction, Adaptation, Basic Visual Functions, Lightness, Acuity)
Required reading: Goldstein Chapter 2

Session 6 – 22 Sep 2020
Optics of the Eye and the Retina, Part 2
(Transduction, Adaptation, Basic Visual Functions, Lightness, Acuity)
Required reading: Goldstein Chapter 3

Session 7 – 24 Sep 2020
LGN and Visual Cortex
(Topography, Cortical Receptive Fields and Columnar Structure)
Required reading: Goldstein Chapter 4

Session 8 – 29 Sep 2020
Depth Perception
(Binocular Vision, Depth Cues)
Required reading: Goldstein Chapter 10

Important: First response paper due.

Session 9 – 1 Oct 2020
Motion
(Physiology and Perception of Motion)
Required reading: Goldstein Chapters 8

Session 10 – 6 Oct 2020
Color
(Physiology and Perception of Color)
Required reading: Goldstein Chapter 9

Session 11 – 8 Oct 2020
Visual Recognition
(Objects and Scene Perception, Animacy, Causality)
Required reading: Goldstein Chapter 5, Scholl & Tremoulet, TiCS, 2000

Session 12 – 13 Oct 2020
Midterm Exam
Topics: Content of sessions 1 through 11

Session 13 – 15 Oct 2020
How to study the visual system
(Levels of analysis, Mechanisms, Understanding a system)
Required reading: Krakauer et al., Neuron, 2017.

Session 14 – 20 Oct 2020
*Guest lecture by **Dr. Martin Maier** on Cognitive Penetrability of Perception*
(Modular perception, Top-down influences)
Required reading: Firestone & Scholl, *Behavioral and Brain Sciences*, 2016.

Session 15 – 22 Oct 2020
The Ecological Approach to Perception
(Environment, Affordances, Reaching and Grasping)
Required reading: Goldstein Chapter 7

Session 16 – 27 Oct 2020
Action and Perception
(The Bidirectional Links of Action and Perception)
Required reading: Churchland, Ramachandran, & Sejnowski, (1994).

Session 17 – 29 Oct 2020
Covert Visual Selection
(Exogenous and Endogenous Attention, Feature-based and Object-based Attention)
Required reading: Goldstein Chapter 6

Session 18 – 3 Nov 2020
Overt Visual Selection
(Eye Movements)
Required reading: Findlay & Gilchrist, 2003, Chapter 1

Session 19 – 5 Nov 2020
Perceptual Learning
(Implications, Transfer Rules)
Required reading: None.

Session 20 – 10 Nov 2020
Vision Science and Eye Tracking (live)
(Demonstration of Equipment for Studying Visual Perception)
Required reading: None.

Note: Session 20 takes place at the Active Perception and Cognition Lab of Prof. Martin Rolfs at the Psychology Department of Humboldt-Universität in Adlershof Berlin (Rudower Chaussee 18, Room 2'240, 12489 Berlin). Provided that students can also participate online via zoom and that the current hygiene standards will allow it.

Session 21 – 12 Nov 2020

Hearing Basics
(Sound, the Ear, Pitch, Loudness)
Required reading: Goldstein Chapter 11

Important: Second response paper due.

Session 22 – 17 Nov 2020
Auditory Processing
(Auditory Pathways and Localization, Auditory Scenes)
Required reading: Goldstein Chapters 12

Session 23 – 19 Nov 2020
The Cutaneous Senses
(Skin, mechanoreceptors, somatosensory cortex, tactile acuity, pain)
Required reading: Goldstein Chapters 14

Session 24 – 24 Nov 2020
The Chemical Senses
(Taste and Smell)
Required reading: Goldstein Chapter 15

Session 25 – 26 Nov 2020 – No Class

Session 26 – 1 Dec 2020
*Guest lecture by **Dr. Michael Gaebler** on Virtual Reality and Perception*
Required reading: none.

Session 27 – 3 Dec 2020
Illusions
(Visual, Auditory and Size-Weight Illusions)
Required reading: None.

Session 28 – 8 Dec 2020
*Guest lecture by **Richard Schweitzer** on Time Perception*
Required reading: none.

Session 29 – 10 Dec 2020
Review session
Required reading: None.

Session 30 – 15 Dec 2020
Final exam
Topics: Content of sessions 13 through 29

Important Hygiene/Social Distancing Regulations in the Classroom
In the interest of protecting the NYU Berlin community, we are closely following guidance around COVID-19 from the Robert Koch Institute (Germany's institute for disease control and prevention), the Centers for Disease Control and Prevention (CDC), the World Health Organization, and the New York City Department of Health and Mental Hygiene and adjusting our recommendations and policies accordingly. Your health and well-being is our top priority. Please consult the NYU Berlin Resource Page frequently for the latest information. You are required to adhere to the most recent policies.

If you are attending in person, you will be assigned a seat on the first day and are expected to use that seat for the entire semester due to NYU COVID-19 safety protocol. Please note that you are expected to attend every class meeting in-person; however, this may change during the drop/add period if in-person student registration increases significantly or at any point during the semester if local COVID-19 regulations require additional physical distancing.

Classroom Etiquette
To optimize the experience in a blended learning environment, please consider the following:

- Please be mindful of your microphone and video display during synchronous class meetings. Ambient noise and some visual images may disrupt class time for you and your peers.
- Please do not eat during class and minimize any other distracting noises (e.g. rustling of papers and leaving the classroom before the break, unless absolutely necessary).
- If you are not using your cell phone to follow the lesson, cell phones should be turned off or in silent mode during class time.
- Make sure to let your classmates finish speaking before you do.
- If deemed necessary by the study away site (ie COVID related need), synchronous class sessions may be recorded and archived for other students to view. This will be announced at the beginning of class time.
- Students should be respectful and courteous at all times to all participants in class.

[Enter further classroom etiquette if applicable; if, for example, it is not permitted to use laptops for note taking, please add the following clause: "Exceptions will be made for students with academic accommodations from the Moses Center." You may also want to tell your students if and how they should signal to you that they would like to speak.]

Suggested Co-Curricular Activities
None.

Your Lecturer
Dr. Sven Ohl studied Psychology at Potsdam University (Germany) and as international exchange student at UC Berkeley. As a graduate student at the Berlin School of Mind and Brain, he completed his PhD in 2013 at Potsdam University. Since then, he joined Prof. Rolf's Active Perception and Cognition group at Humboldt University of Berlin, investigating processes in active visual perception and cognition. Dr. Ohl has been teaching courses in perception and statistics for several years.

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Academic Policies

Grade Conversion

Your lecturer may use one of the following scales of numerical equivalents to letter grades:

A = 94-100 or 4.0
A- = 90-93 or 3.7
B+ = 87-89 or 3.3
B = 84-86 or 3.0
B- = 80-83 or 2.7
C+ = 77-79 or 2.3
C = 74-76 or 2.0
C- = 70-73 or 1.7
D+ = 67-69 or 1.3
D = 65-66 or 1.0
F = below 65 or 0

Attendance Policy

Studying at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centers, or online through NYU Classes if the course is remote synchronous/blended, is expected promptly when class begins. Attendance will be checked at each class meeting. If you have scheduled a remote course immediately preceding/following an in-person class, you may want to write to berlin.academics@nyu.edu to see if you can take your remote class at the Academic Center.

As soon as it becomes clear that you cannot attend a class, you must inform your professor and/or the Academics team (berlin.academics@nyu.edu) by e-mail immediately (i.e. before the start of your class). Absences are only excused if they are due to illness, Moses Center accommodations, 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 that you wish to be treated confidentially must be presented to the Director. Doctor's notes must be submitted in person or by e-mail to the Academics team, who will inform your professors.

Unexcused absences will be penalized with a two percent deduction from the student's final course grade for every week's worth of classes missed, and may negatively affect your class participation grade. Four unexcused absences in one course may lead to a Fail in that course. Being more than 15 minutes late counts as an unexcused absence. Furthermore, your professor is entitled to deduct points for frequently joining the class late.

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 berlin.academics@nyu.edu; 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.

Regardless of whether an absence is excused or not, it is the student's responsibility to catch up with the work that was missed.

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 University Calendar Policy on Religious Holidays

Final exams
Final exams must be taken at their designated times. Should there be a conflict between your final exams, please bring this to the attention of the Academics team by writing to berlin.academics@nyu.edu. Final exams may not be taken early, and students should not plan to leave the site before the end of the finals period.

Late Submission of Work

(1) Work submitted late receives a penalty of 2 points on the 100 point scale for each day it is late (including weekends and public 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.

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

(3) Assignments due during finals week that are submitted more than 3 days late (including weekends and public holidays) without previously arranged extensions will not be accepted and will receive a zero. Any exceptions or extensions for work during finals week must be discussed with the Site Director Dr. Gabriella Etmektsoglou (ge377@nyu.edu).

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

(5) 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.

Moses Accommodations Statement
Academic accommodations are available for students with documented and registered disabilities. Please contact the Moses Center for Student Accessibility (+1 212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance. Accommodations for this course are managed through NYU Berlin (berlin.academics@nyu.edu).

Academic Honesty/Plagiarism

As the University's policy on "Academic Integrity for Students at NYU" states: "At NYU, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community. By accepting membership in this community, students take responsibility for demonstrating these values in their own conduct and for recognizing and supporting these values in others." Students at Global Academic Centers must follow the University and school policies.

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, and may check your assignments by using TurnItIn or another software designed to detect offences against academic integrity.

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. 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 guidelines on academic honesty, clarification of the definition of plagiarism, examples of procedures and sanctions, and resources to support proper citation, please see:

NYU Academic Integrity Policies and Guidelines

NYU Library Guides

Inclusion, Diversity, Belonging and Equity

NYU is committed to building a culture that respects and embraces diversity, inclusion, and equity, believing that these values – in all their facets – are, as President Andrew Hamilton has said, "...not only important to cherish for their own sake, but because they are also vital for advancing knowledge, sparking innovation, and creating sustainable communities." At NYU Berlin, we are committed to creating a learning environment that:

- fosters intellectual inquiry, research, and artistic practices that respectfully and rigorously take account of a wide range of opinions, perspectives, and experiences; and
- promotes an inclusive community in which diversity is valued and every member feels they have a rightful place, is welcome and respected, and is supported in their endeavours.