Content. Do we see the world the way we do because we are the way we are or because the world is the way it is? The ease with which we comprehend the visual world, and recognize objects and events, makes it tempting to think that the world is just the way we see it and to take our perceptual capabilities for granted. But when we comprehend that we cannot process all the information available in the environment, when we try to build machines that can see, or when we encounter people who have lost some specific visual capability—for example, persons who can no longer recognize faces—we realize how extraordinary and intricate are the machinery and mechanisms of sight. This course looks at what we know about vision from multiple scientific perspectives: perceptual psychology tells us about the process of seeing, and provides important insights into the workings of visual mechanisms; neuropsychology shows us what happens to perception when these mechanisms malfunction; neuroscience tells us about processes at the level of cells and neural systems. At the same time, we will discuss modes and techniques of scientific inquiry from these different perspectives. How do vision scientists learn? What kinds of experiments do they conduct? How has the development of new neuroimaging techniques (fMRI, for example) shaped the field?

Skills. Communication skills will be stressed throughout the course. You will write a reaction paper, an opinion paper, a research paper and present orally the research paper. You will also be required to write some exercises that will help you develop the papers.

Readings. Sensation & Perception (2010, 8th edition) by E.B. Goldstein. This book provides an excellent overview of how the senses work. We will concentrate on vision, the dominant sense, and read Chapters 1-7. Additional readings include scientific articles, essays, and a theater play. All readings are due before class. The textbook is available in hardcover, as well as various electronic versions. It may be purchased or rented in either print or electronic format.

- Publisher's website for purchasing & renting hardcover and electronic format: www.cengagebrain.com
- Publisher's free companion website for Goldstein 8e
- Also available new and used online at Amazon.com: hardcover textbook only | book plus CD-ROM | Kindle ebook

Grading. Grading is based on your reaction paper, opinion paper, writing assignments, research paper on a topic of your choice, oral presentation based on your research paper, and class participation (10%).

MARISA CARRASCO is Professor of Psychology and Neural Science at NYU. Born and raised in Mexico City, she received her Licentiate in Psychology from the National University of Mexico and her Ph.D. in Psychology (Cognition and Perception) from Princeton University. She conducts research in cognitive neuroscience, exploring the relation between the psychological and neural mechanisms involved in visual perception and attention. She has published many papers in the most prestigious scientific journals in perception, in particular, and in science, in general. Her research has been continuously funded by the National Institute of Health (NIH) and the National Science Foundation (NSF). Her accomplishments have been recognized by prestigious awards and fellowships throughout her career, such as an American Association of University Women Fellowship, a National Young Investigator Award from the National Science Foundation, a Cattell Fellowship, and a Guggenheim Fellowship.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings / Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 26</td>
<td>Introduction to Perception</td>
<td>(1) Sept 26&lt;br&gt;<strong>Introduction to Perception</strong>&lt;br&gt;Intro, discussion on slides</td>
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<tr>
<td>Feb 2</td>
<td>Introduction to Perception (cont)</td>
<td>(2) Feb 2&lt;br&gt;<strong>Introduction to Perception</strong>&lt;br&gt;How knowledge affects perception&lt;br&gt;– Lecture&lt;br&gt;– In-class discussion of Ackerman’s chapter</td>
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<td>Feb 9</td>
<td></td>
<td>(3) Feb 9&lt;br&gt;– meet in Bobst Lobby, by the elevators at 9:20&lt;br&gt;– Film: “Going Blind” (Bobst, 2nd floor, 9:30 AM)&lt;br&gt;– Provide common comments on reaction paper</td>
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<tr>
<td>Feb 16</td>
<td>Physiology of Perception</td>
<td>(4) Feb 16&lt;br&gt;<strong>Physiology of Perception</strong>&lt;br&gt;– Lecture&lt;br&gt;– In-class discussion/debate on play</td>
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<td>Feb 23</td>
<td>To see and not to see</td>
<td>(5) Feb 23&lt;br&gt;<strong>To see and not to see</strong>&lt;br&gt;– In-class discussion on reading&lt;br&gt;– How to search scientific databases and the anatomy of a scientific paper (Bobst, 6th floor, RM 619, 10:45 AM)</td>
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<td>March 2</td>
<td>Neurons and Perception</td>
<td>(6) March 2&lt;br&gt;<strong>Neurons and Perception</strong>&lt;br&gt;– Lecture&lt;br&gt;– Peer review (handout)&lt;br&gt;– In-class Peer review of draft</td>
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<td>March 9</td>
<td>The Organized brain</td>
<td>(7) March 9&lt;br&gt;<strong>The Organized brain</strong>&lt;br&gt;– Lecture&lt;br&gt;– Explain how to ask a Question</td>
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<td>March 16 – Spring break</td>
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<tr>
<td>March 23</td>
<td>Writing Workshop based in Scientific American article</td>
<td>(8) March 23&lt;br&gt;– Writing Workshop based in Scientific American article&lt;br&gt;– In-class discussion of Question</td>
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<tr>
<td>March 30</td>
<td></td>
<td>(9) March 30&lt;br&gt;– In-class Peer review on Paper Draft&lt;br&gt;– Lecture on neuroimaging</td>
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**Readings / Assignments**

- **Chapter 1**
  - [1 page reaction paper on the class slides (2 copies); 5% of grade]
  - Diane Ackerman, “Vision”, *Natural History of the Senses*, New York

- **Chapter 2**
  - Lennie’s handout on writing

- **Chapter 3**
  - [Draft of 2-pages opinion paper (3 copies); 10% of grade]

- **Chapter 4**
  - [2-3 pages Opinion paper–10% of grade; 1/2 page of possible enquiry (2 copies)]

  - [Topic and Question for Research Paper; include 3-5 sources and explain their relevance - 10% of grade]

- **Draft Research Paper, 5-7 pages; 5 copies - 10% of grade**
(10) April 6
Perceiving objects
   – Lecture
   -- Comments on Research Paper Draft
   -- Perceptual demos (positive afterimages)

Chapter 5

(11) April 13
Visual attention
   – Lecture

Chapter 6

– Lecture on How to design your oral presentations
Handout(s) on presentations

(12) April 20
Perception, Attention and Magic

(13) April 27
Oral presentations
   – Peer Review of Draft
   – In class Peer Review of Slides

[Draft of research paper, ~12 pages]
[Draft of slides for oral presentation; 5% of grade]

(14) May 4
Students’ oral presentations of Research Paper
8 Oral presentations [20% of grade]

(15) May 11
Students’ oral presentations of Research Paper
8 Oral presentations [20% of grade]

FINAL PAPER: 15 pages [20% of grade]

Class participation: [10% of grade]