**NGG 573: Neuroscience Core III 2020**

**Course Directors**: Maria Geffen, Franz Weber

**Time**: MWF, 10:00am-12:00pm

**Location**: 140 John Morgan Building (Barchi Neuroscience Library); labs meet in 210 Stemmler

**Text** : *The Human Brain* (John Nolte [N]; any version) and *Principles of Neural Science* (Kandel & Schwartz [K&S]; 5th Edition). If you do not want to purchase these texts, copies of Kandel are on reserve in the Biomedical Library. Nolte is available through Penn Library's subscription to ClinicalKey; see also the course Canvas website for the link. Additional readings are found in the “2020 Readings” folder on the course’s Canvas website.

**Goals of Core III**

(1) Learn the basic structural features of the vertebrate brain at the macroscopic scale (gross = major subdivisions, major connecting tracts).

(2) Learn to find your way around the brain using the various available maps (atlases) at the corresponding levels of scale: This gets easy as you accomplish goal #1.

(3) Have an understanding and appreciation of our current understanding of systems and integrative neuroscience.

**Grading**: Take-home Exams (80% total), in-class practical (15%), and class participation (5%).

Tests will be distributed electronically via Canvas and will be returned electronically to the designated folder on Canvas. Tests will be given after the completion of certain units and will need to be returned within **72 hours**. We will discuss this more in class. Text in **bold red** below highlight those days when a test will be distributed. These tests may include lectures from one or more topics and one or more lectures.

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| ***Day*** | ***Date*** | ***Topic*** | ***Lecturer*** |
| W | Jan 15 | Course overview and anatomy lab 1 | Maria Geffen/Yale Cohen/Franz Weber |
| F | Jan 17 | Meninges/vasculature and lab 2 | Yale Cohen |
| M | Jan 20 | MLK; no class | MLK; no class |
| W | Jan 22 | Lab 3 | Edward Lee/Yale Cohen |
| F | Jan 24 | Pathology | Edward Lee |
| M | Jan 27 | Brain Dissection | Yale Cohen |
| W | Jan 29 | Brain Dissection | Yale Cohen |
| F | Jan 31 | In class practical | Yale Cohen/Maria Geffen |
| M | Feb 3 | Practical | Yale Cohen/Maria Geffen |
| W | Feb 5 | Basics: Development; K&S 52-56 | Jonathan Raper |
| F | Feb 7 | Basics: Development; K&S 52-56 | Jonathan Raper |
| M | Feb 10 | Comp. neuroscience 1 | Maria Geffen |
| W | Feb 12 | Comp. neuroscience 2 | Konrad Kording |
| F | Feb 14 | Vision 1; development | Michael Arcaro |
| M | Feb 17 | Vision 2; K&S 25-29 | Dieog Contreras |
| W | Feb 19 | Vision 3; K&S 25-29 | Russell Epstein |
| F | Feb 21 | Auditory system 1; K&S 30-31 | Steven Eliades |
| M | Feb 24 | Auditory system 2; K&S 30-31 | Maria Geffen |
| W | Feb 26 | Olfactory system; N18; K&S 25-29 | Jay Gottfried |
| F | Feb 28 | Taste; N18; K&S 25-29 | Joel Mainlaind |
| M | Mar 2 | Hunger | Amber Alhadeff |
| W | Mar 4 | Somatosensory system | Wenqin Luo |
| F | Mar 6 | Eye movements; K&S 39-40 | Long Ding |
| M | Mar 9 | Spring break |  |
| W | Mar 11 | Spring break |  |
| F | Mar 13 | Spring break |  |
| M | Mar 16 | Hippocampus & Neurogenesis | Amelia Eisch |
| W | Mar 18 | Hippocampus & Learning | Kimberly Christian  |
| F | Mar 20 | Hippocampus & Plasticity | Yale Cohen |
| M | Mar 23 | Fear and amygdala | Steven Thomas |
| W | Mar 25 | Memory models  | Anna Schapiro |
| F | Mar 27 | Sleep & Development | Matt Kayser |
| M | Mar 30 | Sleep & Neural circuits | Franz Weber |
| W | Apr 1 | Circadian Rhythms | David Raizen |
| F | Apr 3 | Sleep in drosophila | Julie Williams |
| M | Apr 6 | Sleep & depression | Philip Gehrman |
| W | Apr 8 | Nucleus Accumbens & Addiction | Heath Schmidt |
| F | Apr 10 | Psychiatric disorders | Joe Zhou |
| M | Apr 13 | Addiction | John Dani |
| W | Apr 15 | Epigenetics & depression | Liz Heller |
| F | Apr 17 | Stress & depression | Seema Bhatnagar |
| M | Apr 20 | No class |  |
| W | Apr 22 | BMI  | Flavia Vitale |
| F | Apr 24 | TMS | Roy Hamilton |
| M | Apr 27 | DBS | Tim Lucas |
| W | Apr 29 | 2p imaging | Ethan Goldberg |