“The Biology and Pathology of the Visual System”

Graduate Course, BIO5501

Fall Semester, 2015

Tuesdays and Thursdays, 5:15 - 6:30 PM

LOCATION: Farrell Learning & Teaching Center - FLTC 301

This multidisciplinary course is organized by the Department of Ophthalmology & Visual Sciences to provide a thorough introduction to the biology of major ocular compartments and their associated pathologies. Starting from the front to the back of the eye, specialists in their fields will describe the developmental, biological and functional aspects of each compartment with a special emphasis on the neural retina. Clinical scientists will describe the most common pathologies of these compartments with an emphasis on current translational challenges/opportunities. Because multidisciplinary approaches are required to study the eye as a “system”, this course should be of great interest to developmental and cell biologists, neuroscientists, geneticists, bioengineers and clinician-scientists. Each class consists of a ~50 min presentation followed by a ~20 min informal discussion. Graduate students, Postdoctoral fellows, Faculty, Residents and Technicians with an interest in such diverse aspects of visual sciences are strongly encouraged to attend.

Coursemasters: Didier Hodzic, Susan Culican and Vladimir Kefalov

FROM FRONT TO BACK OF THE EYE

OVERVIEW
Tue Sept 1st Overview of the eye from an evolutionary perspective Joe Corbo

CORNEA
Thu Sept 3rd Cornea I: Structure, physiology, transparency Andrew Huang
Tue Sept 8th Cornea II: Stem cells and corneal renewal Andrew Huang

ANTERIOR SEGMENT
Thu Sept 10th Structure and function: Aqueous humor inflow and outflow Arsham Sheybani

LENS
Tue Sept 15th Genetics of cataract- age related cataracts Alan Shiels
Thu Sept 17th Lens: structure, cell biology, refractive errors and aging Steven Bassnett
Tue Sept 22nd Chaperone proteins in the eye Usha Andley

VITREOUS
Thu Sept 24th Structure and function of the vitreous body Nathan Ravi

RETINA: DEVELOPMENT
Tue Sept 29th Cell biology of retinal development Didier Hodzic
Thu Oct 1st Genetic control of retinal development Shiming Chen
Tue Oct 6th Neurobiology of retinal development Daniel Kerschensteiner
Thu Oct 8th Journal Club Florentina Soto

RETINA&VISUAL PROCESSING
Tue Oct 13th Retina I: Structure and function Peter Lukasiewicz
Thu Oct 15th Retina II: Neurobiology of visual processing Peter Lukasiewicz
Tue Oct 20th Neuroscience meeting --
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<tr>
<th>Date</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>Thu Oct 22nd</td>
<td>Photoreceptors and signal transduction</td>
<td>Vladimir Kefalov</td>
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<td>Tue Oct 27th</td>
<td>Visual adaptation and photoreceptors</td>
<td>Vladimir Kefalov</td>
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<td>Thu Oct 29th</td>
<td>Circadian rhythms and the visual system</td>
<td>Erik Herzog</td>
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**RETNAL PATHOLOGIES**

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<tr>
<th>Date</th>
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<th>Presenter</th>
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<tbody>
<tr>
<td>Tue Nov 3rd</td>
<td>Introduction to ocular pathologies</td>
<td>Susan Culican</td>
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<td>Thu Nov 5th</td>
<td>Vasculopathies</td>
<td>Rithwick Rajagopal</td>
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<td>Tue Nov 10th</td>
<td>Inherited retinal diseases</td>
<td>Susan Culican/Larry Tychsen</td>
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<td>Thu Nov 12th</td>
<td>Immune privilege</td>
<td>Thomas Ferguson</td>
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**CENTRAL VISUAL PATHWAYS**

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<th>Date</th>
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<tr>
<td>Tue Nov 17th</td>
<td>Development, physiology and pathophysiology</td>
<td>Susan Culican</td>
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<td>Thu Nov 19th</td>
<td>Glaucoma and ganglion cell neuropathies</td>
<td>Banks Shepherd</td>
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<td>Tue Nov 24th</td>
<td>Central visual pathways in health and disease</td>
<td>Greg Van Stavern</td>
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<td>Thu Nov 26th</td>
<td><strong>Thanksgiving</strong></td>
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**FACULTY**

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