

Advanced Cell Biology: Cell, tissue, organ.

BIOL7440. 3 credits. CRN #17776

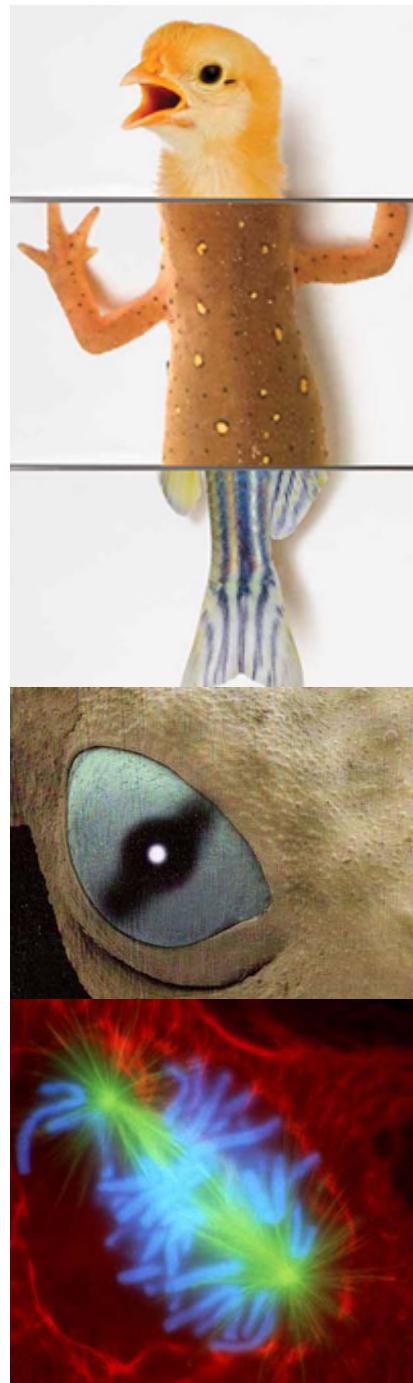
Planned time/place: Tuesdays 6-9 pm Place: LS 310

Who is this course for? Graduate students who would like to better understand cellular structures and functions and how cell – cell interactions give rise to tissues, organs and body plans. The first 1/3 of the course will be largely structural. The second 2/3 integrates structure - function relationships and moves toward tissue/organ function. Class will have a strong empirical approach. Students will discuss current experimental papers and will gain valuable insight into current techniques.

General Objectives: To provide the advanced student with a general understanding of eukaryotic cellular organization, to explore recent findings in eukaryotic and to a lesser extent, prokaryotic cellular function and structure, to gain a better understanding of cell-cell interactions (in primarily eukaryotic systems) and to learn how such interactions give rise to higher level structure and function in tissues and organs.

Planned Topics: Nucleus - cytoskeleton - cellular traffic and cell membrane biology – docking – ECM – endocytosis– cell signalling – stem cells (incl. iPSCs) – cell movement, migration and path finding – cell division – bone, skin, neural crest – body ‘sidedness’ – small RNAs – regeneration – cancer – student’s choice.

Reading materials: A major recent cell biology text is needed as reference. Eg: Lodish et al., 2008, Alberts, Bray et al., 2008 or Pollard, Lippincott-Schwartz and Earnshaw, 2007, or Karp 2010. We will mainly examine the current review and experimental literature. We will examine & discuss readings from Trends in Cell Biology, Annual Review of Cell & Developmental Biology, Current Biology, J. Cell Biology, etc.



Grading: One take home exam (20% instructor material, 20% material from the students), one presentation (20%) and one term paper on the material presented in class (30%); 10 % for in-class participation.

Please contact the instructor: Dr. Anthony Moss at mossant@auburn.edu (334)844-9257