

# 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](mailto:mossant@auburn.edu) (334)844-9257

