I. Stroma (Weeks 1-4)

- 9/8: Intro to course/overview/expectations
  - 1st hour: Ellen Pure Overview Lecture

- 9/15 Tumor/stromal interactions
  - 1st hour: NF1 paper (Yang et al. 2008 – Wade Clapp lab as main paper; (Zhu et al., 2002, Luis Parada lab, secondary paper). Basil Bakir

- 9/22 Fibroblasts/pericytes
  - 1st 40 min: Bhowmick NA et al., TGF-beta signaling in fibroblasts modulates the oncogenic potential of adjacent epithelia, Science 2004 (Hal Moses lab). Jaijun Zhu
  - 2nd 40 min: Greenberg et al., A role for VEGF as a negative regulator of pericyte function and vessel maturation, Nature 2008 (David Cheresh lab). Bridget Sackey
  - 3rd 40 min: Trimboli et al., Pten in stromal fibroblasts suppresses mammary epithelial tumours. Nature 2009 (Gustave Leone lab). Will Cho

- 9/29 Extracellular matrix/proteases
  - 1st hour: Grugan et al., Fibroblast-secreted hepatocyte growth factor plays a functional role in esophageal squamous cell carcinoma invasion. PNAS, 2010 (Anil Rustgi lab). Nicole Aiello
  - 2nd hour: Ahn GO and Brown JM. Matrix Metalloproteinase-9 Is Required for Tumor Vasculogenesis but Not for Angiogenesis: Role of Bone Marrow-Derived Myelomonocytic Cells (Martin Brown lab) Albert Lo

- 10/6 Regulation of Metastasis:
  - 1st hour: Kaplan et al., VEGFR1-positive haematopoietic bone marrow progenitors initiate the pre-metastatic niche. Nature 2005. (David Lyden, Shahin Rafii lab) Bo Qiu

II. Angiogenesis (Weeks 5-7)

- 10/13 Hypoxia
  - 1st 40 min: Celeste Simon Overview Lecture

3rd 40 min: Arany et al., HIF-independent regulation of VEGF and angiogenesis by the transcriptional coactivator PGC-1. Nature 2008 (Bruce Spiegelman lab). Sara Small

10/20 Angiogenesis regulators

1st hour: Ding BS, et al., Inductive angiocrine signals from sinusoidal endothelium are required for liver regeneration. Nature 2010 (Shahin Rafii lab). Rebecca Evans


10/27 Endothelial cell biology

1st hour: Wang et al., Glioblastoma stem-like cells give rise to tumour endothelium. Nature 2010 (Vivian Taber lab) – 2 papers back to back in Nature on this topic; 2nd paper: Ricci-Vitaiani et al., Tumour vascularization via endothelial differentiation of glioblastoma stem-like cells. Nature 2010 (Ruggero De Maria lab). Omkar Kawalekar


III. Immune Surveillance (Weeks 8-12)

11/3 Innate immunity

1st 40 min: Ellen Pure Overview Lecture


3rd 40 min: Fridlender et al., Polarization of tumor-associated neutrophil phenotype by TGF-beta: "N1" versus "N2" TAN. Cancer Cell, 2009. (Steve Albelda lab). Basil

11/10 Adaptive immunity

1st hour: Dougan et al., A dual role for the immune response in a mouse model of inflammation-associated lung cancer. JCI, 2011 (Glen Dranoff lab). Will


11/17 Innate immunity


12/1 Organ-specific microenvironments


IV. Therapeutic targets in the microenvironment (Weeks 12)

12/8 Therapeutic targets

- 1st 40 min: Robert Vonderheide Overview Lecture

- 2nd 40 min: Olive et al., Inhibition of Hedgehog signaling enhances delivery of chemotherapy in a mouse model of pancreatic cancer. Science 2009 (David Tuveson lab). Nicole

- 3rd 40 min: Batchelor TT, et al., AZD2171, a pan-VEGF receptor tyrosine kinase inhibitor, normalizes tumor vasculature and alleviates edema in glioblastoma patients. Cancer Cell 2007 (Rakesh Jain lab). Nikolaos

12/15 Therapeutic targets
