2023-2024  MCB Area of Interest Course Information
Gene Expression, Cell Cycle & Chromosome Biology

Please check the University of Washington Time Schedule for the most updated course information.

FOUNDATIONAL COURSES

Foundational Course One:

Course Number: CONJ 537
Course Title: Mechanisms of transcriptional regulation
Instructor(s): Steve Hahn, Toshio Tsukiyama
Location (e.g., UW, FH, SLU): FH
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 6-10, offered even-numbered years, will be offered in Autumn 2024.
Attributes (e.g., graded, lecture-based): Lecture-based
Sub Area (if applicable):
Synopsis: A five-week graduate survey course concentrating on biochemical mechanisms of gene transcription. The course will cover a broad range of transcriptional regulation including: Mechanisms of transcriptional initiation; Regulation of transcription by chromatin; Transcriptional regulation, development and diseases in mammals.
Note: Alternatively, similar course material is covered in GENOME 551 – Principles of Gene Regulation (Winter, weeks 6-10, will be offered in Winter 2024, 1.5 credits). Enrollment priority is given to Genome Sciences graduate students.

ELECTIVE COURSES

Elective Course One:

Course Number: CONJ 532
Course Title: Signal Transduction from The Cell Membrane to The Nucleus
Instructor(s): Shao-En Ong
Location: UW
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 6-10
Attributes: Lecture
Sub Area (if applicable):
Synopsis: Intracellular signaling pathways leading from cell membrane receptors to nucleus. Pathways activated by seven transmembrane receptors and G-proteins, insulin/PI3 kinase, MAPKs, and WNTs and mechanisms of signal termination. Cytokine/Jak/Stat signaling and role of subcellular localization in signal transduction.

Elective Course Two:

Course Number: CONJ 544
Course Title: Protein Structure, Modification, and Regulation
Instructor(s): Barry Stoddard
Location: FH
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: Winter, weeks 1-5, offered odd-numbered years, will be offered in Winter 2025
Attributes:

Sub Area (if applicable):

Synopsis: Overview of general principles of protein structure, including forces that contribute to folding and stabilization, followed by an extended coverage of the means by which protein structure and function are modified and regulated. Examples from recent developments in protein folding, processing, and allosteric regulation. Prerequisite: introductory biochemistry and cell biology.

Elective Course Three:

Course Number: MCB 522
Course Title: The Developmental Basis of Human Disease
Instructor(s): Cecilia Moens
Location: FH
Credits: 3
Quarter, Weeks, and Frequency course is offered: Winter, weeks 1-10, will be offered in Winter 2024

Attributes:

Sub Area (if applicable):

Synopsis: Uses recent discoveries in human genetics to guide student learning about animal development. Explores the normal developmental function of genes that have been identified as causal in human developmental disorders such as skeletal dysmorphologies, ciliopathies, autism, and cancer.

Elective Course Four:

Course Number: MCB 539
Course Title: Biological Basis of Neoplasia
Instructor(s): David MacPherson, Bob Eisenman
Location: FH
Credits: 3
Quarter, Weeks, and Frequency course is offered: Spring, weeks 1-10, will be offered in Spring 2024

Attributes: Lecture and Literature Review

Sub Area (if applicable):

Synopsis: Introduces the major themes in research in the biology of neoplastic change. Covers principle molecular mechanisms responsible for tumor initiation and progression, with a specific emphasis on intracellular signaling, DNA repair, cell cycle checkpoints, and loss of normal tissue homeostasis. The latest state of the art research in Cancer Biology will be presented by invited scientists, experts in their relevant field. The discussion meetings will concentrate on selected major papers in cancer biology and be presented and discussed by the students with help and guidance of the instructors.