

MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY (MCDB)

Any experimental courses offered by MCDB can be found at:

registrar.iastate.edu/faculty-staff/courses/explistsings/ (<http://www.registrar.iastate.edu/faculty-staff/courses/explistsings/>)

Courses primarily for graduate students, open to qualified undergraduates:

MCDB 511: Advanced Molecular Genetics

(Cross-listed with GDCB). (3-0) Cr. 3. S.

Prereq: BIOL 313 and BBMB 405

Mechanisms of molecular genetic processes in eukaryotes and prokaryotes, including DNA replication and repair, transcription, translation and regulation of gene expression. Critical evaluation and discussion of current primary literature, methodologies and experimental data.

MCDB 528: Advances in Molecular Cell Biology

(Cross-listed with GDCB). (3-0) Cr. 3. Alt. F., offered even-numbered years.

Prereq: Courses in general cell biology and biochemistry

Cell biological processes including cell signaling, cell division, intracellular trafficking, biogenesis of organelles, cell adhesion and motility.

MCDB 533: Advances in Developmental Biology

(Cross-listed with GDCB). (3-0) Cr. 3. Alt. F., offered odd-numbered years.

Prereq: BIOL 314 or Biol 423

Fundamental principles in multicellular development. Emphasis on cellular and molecular regulation of developmental processes, and experimental approaches as illustrated in the current literature.

MCDB 545: Plant Molecular, Cell and Developmental Biology

(Cross-listed with GDCB, PLBIO). (3-0) Cr. 3. Alt. F., offered odd-numbered years.

Prereq: Biol 313, BIOL 314, BIOL 330 or BBMB 405

Plant nuclear and organelle genomes; regulation of gene expression; hormone signaling; organization, function, and development of plant cells and subcellular structures; regulation of plant growth and development.

MCDB 590: Special Topics

Cr. arr. Repeatable.

Courses for graduate students:

MCDB 676: Biochemistry of Gene Expression in Eucaryotes

(Cross-listed with BBMB). (2-0) Cr. 2. Alt. S., offered even-numbered years.

Prereq: BBMB 404 and BBMB 504; and BBMB 506 and BBMB 507; or BBMB 405 or BBMB 505 and or GDCB 511

Analysis of the biochemical processes involved in expression of eucaryotic genes and the regulation thereof, including RNA polymerase, transcriptional regulatory proteins, enhancers and silencers, chromosome structure, termination, RNA processing, RNA transport, RNA turnover, small RNAs, translational regulation, protein turnover.

MCDB 697: Graduate Research Rotation

Cr. 1-6. Repeatable. F.S.

Graduate research projects performed under the supervision of selected faculty members in the molecular, cellular, and developmental biology program.

MCDB 698: Seminar in Molecular, Cellular, and Developmental Biology

(Cross-listed with BBMB, GDCB, MICRO, V MPM). (2-0) Cr. 1-2. Repeatable. F.S.

Student and faculty presentations.

MCDB 699: Research

Cr. arr. Repeatable.