

**Ankara Üniversitesi**  
**Kütüphane ve Dokümantasyon Daire Başkanlığı**  
**Açık Ders Malzemeleri**

**Syllabus**

<b>Course Title and Code</b>	MOLECULAR BIOLOGY OF DIFFERENTIATION <b>BIO 448</b>
<b>Instructors</b>	Fadime KIRAN, Assoc. Prof.
<b>Course Level</b>	Bachelor's Degree
<b>Course Credit</b>	2.0 (AKTS 3.0)
<b>Course Type</b>	Elective
<b>Course Content</b>	Animal development; indirect and direct development, cleavage, morula, blastula, gastrula, early and late embryonic development, placenta, Differential gene expression; determination, transdetermination, totipotens, the role of cytoplasmic segregation and induction, development potential, cloning a mammal, the role of pattern formation in organ development, apoptosis, organ identity genes, morphogens and positional information, Segmentation genes, double rule genes, gap genes, segment polarity genes, homeotic (homeobox-containing) genes, homeotic mutations, transcriptional regulation of gene expression; exons and introns, promoter structure and function, enhancer structure and function, transcription factors (homeodomain and POU protein families), transcription factors (helix-loop-helix, zinc finger, leucine zipper motifs)
<b>Course Goals</b>	To teach development, developmental stages, differential gene expression in embryonic and postembryonic developmental stages, transcriptional regulation of gene expression, the factors that are effective on transcriptional regulation of gene expression. Teaching the development mechanisms of cells and tissues in different types than fertilized egg (ie from a single cell) and the factors affecting them.
<b>Learning Outcomes</b>	1) Know animal development models 2) Describe the stages of development 3) Explain the mechanisms of determination and differentiation
<b>Course Time</b>	2+0
<b>Language of Instruction</b>	English
<b>Prerequisites</b>	None
<b>Recommended Sources</b>	1) Audesirk, T. and Audesirk, G. (1999) Biology, Life on Earth. Fifth Edition. Prentice Hall, Upper Saddle River, New Jersey 2) Purves, W. K. et al. (1997) Life The Science of Biology. Fifth Edition. Sinauer Associates, Inc., W. H. Freeman and Company, USA 3) Gilbert, S. F. (1997) Developmental Biology. Fifth Edition. Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts