

ZOC 129: MOLECULAR BIOLOGY



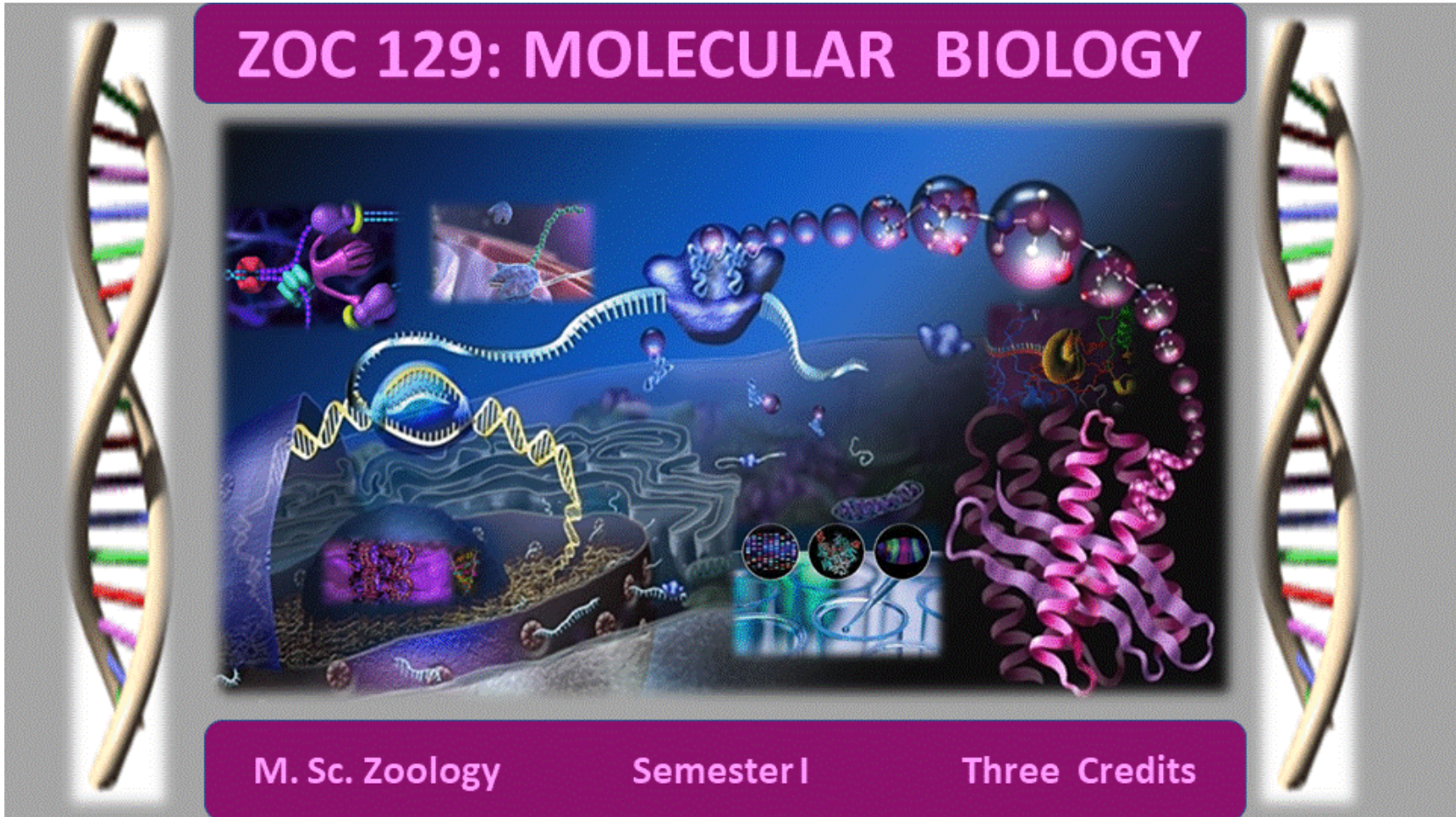
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[Molecular Cell Biology, 4th edition Harvey Lodish, Arnold Berk, S Lawrence Zipursky, Paul Matsudaira, David Baltimore, and James Darnell.](#)

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[Molecular Biology of the Cell, 4th edition Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter.](#)

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[An Introduction to Genetic Analysis, 7th edition Anthony JF Griffiths, Jeffrey H Miller, David I Suzuki, Richard C Lewontin, and William M Gelbart.](#)

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[Biochemistry, 5th edition Jeremy M Berg, John L Tymoczko, and Lubert Stryer.](#)

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[Modern Genetic Analysis Anthony JF Griffiths, William M Gelbart, Jeffrey H Miller, and Richard C Lewontin.](#)

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✚  [Genomes, 2nd edition Terence A Brown.](#) 

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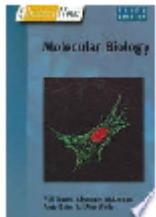
✚  [Molecular Biology of the Cell By Bruce Alberts](#) 

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✚  [Molecular Biology By Philip C. Turner, Alexander G. McLennan](#) 

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✚ [MODULE 1](#)

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✚  [Lecture 1 Handout](#) 

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✚  [Lecture 1 Video](#) 

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✚  [Lecture 2 handout](#) 

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✚  [Lecture 2 video Part 1](#) 

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✚  [Lecture 2 video Part 2](#) 

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✚  [Lecture 2 video last part and lecture 4 first part](#) 

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✚  [Science History institute](#) 

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✚  [Discovery of DNA Structure and Function: Watson and Crick](#) 

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✚  [The Discovery of DNA](#) 

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✚  [The discovery of the molecular structure of DNA - the double helix](#) 

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✚  [How I discovered DNA - James Watson](#) 

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✚  [Lies, Thieves and DNA](#) 

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✚  [The Discovery of the Structure of DNA: Double Helix, Biochemistry \(2000\)](#) 

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✚  [Lecture 9 - DNA Structure](#) 

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✚  [Three-dimensional double helical DNA structure directly revealed from its X-ray fiber diffraction pattern by iterative phase retrieval](#) 

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✚  [Activity 1](#) 

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Activity 1

Describe and build your own timeline for discovery of DNA double helix for a duration from 1866 to 1961.

10 mks

1000 words

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|  Lecture 4 Handout  | Edit  |  |
|  Lecture 2 video last part and lecture 4 first part  | Edit  |  |
|  Lecture 4 video last part and Lecture 5 beginning  | Edit  |  |
|  Activity 2A & B  | Edit   |  |

Activity 2 A

1. Describe various forces of attraction (weak & strong) that make up the DNA helix stable. 05 mks
(Diagram + 400 word)
2. What are Inosine & Hypoxanthine and what is their significance in molecular biology? 05 mks
(Diagram + 400 word)

Activity 2 B

1. Prepare a differentiating chart on types of DNA due to nucleotide conformations. 05 mks
(Diagrams + Chart + description 300 words)
2. Describe types of DNA based on unusual DNA sequence structures. 05 mks
(Diagrams + 500 words)

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|  Lecture 4 video last part and Lecture 5 beginning  | Edit  |  |
|  Lecture Handout 5  | Edit  |  |
|  Lecture 5 video part 2  | Edit  |  |
|  Lecture 5 video part 3  | Edit  |  |
|  Lecture 5 video Last part  | Edit  |  |
|  Activity 3  | Edit   |  |

Activity 3

1. Describe various Repetitive DNA Sequences and their functions.
05 mks mks
(Diagrams + 1000 word)
2. Draw a chart explaining structure and function of Telomeres and Centromeres.
05 mks mks
(Diagrams with labelling)

- | | | |
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|  Activity 4  | Edit   |  |
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Activity 4

1. Distinguish between Polytene Chromosome and Lampbrush Chromosome

05 mks (Diagrams + 1000 word)

2. Prepare a detailed chart depicting Various Chromosomal Abrasions and related diseases.

05 mks (Detailed Chart)

	Lecture 5 Extra video	Edit ▾	☒
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	Lecture 5 Extra Revised handout	Edit ▾	☒
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	Lecture 6 Handout	Edit ▾	☒
	Lecture 6 Video	Edit ▾	☒
	Lecture 6 Activity video	Edit ▾	☒
	Lecture 6 Activity video 2	Edit ▾	☒
	Lecture 6 reference	Edit ▾	☒
	Lecture 6 reference 1	Edit ▾	☒
	Lecture 6 reference 2	Edit ▾	☒
	Lecture 7 Handout	Edit ▾	☒
	Activity 5	Edit ▾	☒

Activity 5

1. Give summaries of discoveries made in Genetics and Molecular Biology using *D. melanogaster* and *C. elegans* as animal models.

10 mks 1000 words

	Lecture 7 Video	Edit ▾	☒
	Lecture 7 Drosophila Part I Video	Edit ▾	☒
	Lecture 7 Drosophila Part II Video	Edit ▾	☒
	Lecture 7 C. elegans Video	Edit ▾	☒
	Introduction: Drosophila—A Model System for Developmental Biology	Edit ▾	☒
	Advantages of using Drosophila Melanogaster as a Model Organism	Edit ▾	☒
	Care Sheet: Flightless Fruit Fly (Drosophila melanogaster)	Edit ▾	☒
	Lecture 8 Handout	Edit ▾	☒
	Activity 6	Edit ▾	☒

Activity 6

1. Give a summary of Genome Evolution.

10 mks 1000 words Max

	Lecture 9 Handout Part I	Edit ▾	☒
	Lecture 9 Handout Part II	Edit ▾	☒

- Lecture 9 Handout Part II

Edit
- Lecture 8 Video

Edit
- Lecture 9 Part I Video

Edit
- Lecture 9 Part I complete & II initiated Video

Edit
- Activity 7

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Activity 7

1. What do you understand by Functional Chromosome ?

10 mks 500 words Max

- Lecture 10 video Revision & Discussion

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Molecular Biology YouTube Resources

Edit

- dmflyboy

Edit

David J. Marcey, Ph.D.
Professor and Fletcher Jones Professor of Developmental Biology, California Lutheran University

- Bob Trenwith

Edit

Rosie redfield
Professor , University of British Columbia

- Genetics

Edit

- Nucleic acids I

Edit

Lecture Series on BioChemistry I by Prof.S.Dasgupta, Dept of Chemistry, IIT Kharagpur NPTEL

- Nucleic acids II

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Lecture Series on BioChemistry I by Prof.S.Dasgupta, Dept of Chemistry, IIT Kharagpur NPTEL

- Nucleic acids III

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Lecture Series on BioChemistry I by Prof.S.Dasgupta, Dept of Chemistry, IIT Kharagpur NPTEL

- Lecture 9 part II handout

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MODULE 2

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- Lecture 14 Handout

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- Lecture 15-16 Handout

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- Lecture 17 Complete Handout

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- Lecture 14 Part I video

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- Lecture 14 Part II video

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- Lecture 15 video

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- Lecture 16 video

Edit
- Ames test (Technique to determine mutagenic potential)

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✚	 Ames test (technique to determine mutagenic potential) 	Edit	☒
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✚	 Lecture 17 Part I video 		
✚	 Lecture 17 Part II video 	Edit	☒
✚	 DNA Repair Mechanism I Video BY EASY PEASY SEHER 	Edit	☒
✚	 DNA Repair Mechanism II Video BY EASY PEASY SEHER 	Edit	☒
✚	 Lecture 18 Handout 	Edit	☒
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✚	 Lecture 19-20 video 	Edit	☒
✚	 Lecture video on Module I ISA feedback 	Edit	☒
✚	 P53 genes 	Edit	☒
✚	 Lecture 26 Primer Handout 	Edit	☒
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✚	 Lecture 26 last part video 	Edit	☒
✚	 Lecture 26 last part Handout 	Edit	☒
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Submission link for Module II Activities

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Submission link for Module III Activities

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✚	 Lecture 27 lecture Transcription in eukaryotes video 	Edit	☒
✚	 Lecture 3 part+ 27 part and lecture 28 part 	Edit	☒
✚	 Lecture3+ 27+28 lecture video 1 	Edit	☒
✚	 Lecture3+ 27+28 lecture video 2 	Edit	☒
✚	 Lecture 3+ 27+ 28 lecture video 3 	Edit	☒
✚	 Lecture 27 Splicing 	Edit	☒
✚	 Lecture 27 Splicing 	Edit	☒
✚	 Lecture 28 Part 1 	Edit	☒
✚	 Lecture 28 Part 1 	Edit	☒
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✚	 Lecture 28 Part II 	Edit	☒

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✚	 Lecture 29 -2 	Edit 	☒
✚	 Lecture 29-3 	Edit 	☒
✚	 Lecture 30 part 	Edit 	☒
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✚	 Bird Identification 	Edit 		☒
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