

<b>Module Code</b>	MEU44BM1
<b>Module Name</b>	Introductory Cell and Molecular Biology
<b>ECTS Weighting<sup>1</sup></b>	5 ECTS
<b>Semester taught</b>	Semester 1
<b>Module Coordinator/s</b>	Dr. Sarah Doyle <a href="mailto:doyles8@tcd.ie">doyles8@tcd.ie</a>
<b><a href="#">Module Learning Outcomes</a> with reference to the <a href="#">Graduate Attributes</a> and how they are developed in discipline</b>	<p>On successful completion of this module, students should be able to:</p> <ol style="list-style-type: none"> <li>1. Recognise the main microscopic architectural features of the mammalian cell.</li> <li>2. Define and explain the fundamental activities of the mammalian cell.</li> <li>3. Assign various cellular processes to a role in maintaining cellular homeostasis.</li> <li>4. Assemble and describe a working model of the linkages between gene structure and protein expression in the human body.</li> <li>5. Recognise and explain the role of the genetic code in inherited traits and disease.</li> </ol> <p><b>Graduate Attributes: levels of attainment</b>  To act responsibly - Not embedded  To think independently - Introduced  To develop continuously - Enhanced  To communicate effectively - <b>Enhanced</b></p>
<b>Module Content</b>	<p>This module provides an integrated overview of the cellular level of organisation in the human body.</p> <ul style="list-style-type: none"> <li>• Cell theory</li> <li>• Biological Membranes</li> <li>• Microscopy</li> <li>• Cellular organelles</li> </ul>

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<sup>1</sup> [TEP Glossary](#)

- The cytoskeleton
- Intracellular Fluid, volume and pH
- Membrane Potential
- Import Export mechanisms
- Cell-cell communication 1 + 2
- Enzymes and Energy
- Cellular Respiration
- Composition and packaging of DNA & Chromosomal organisation
- DNA replication
- The cell cycle
- Gene transcription
- Translation of mRNA
- Transcription/translational control
- Post transcriptional control
- Heritability
- Genotyping
- Genetics of Heritable disease

#### **Teaching and Learning Methods**

Lectures  
Laboratory simulation

<b>Assessment Details<sup>2</sup></b> <b>Please include the following:</b> <ul style="list-style-type: none"> <li>• <b>Assessment Component</b></li> <li>• <b>Assessment description</b></li> <li>• <b>Learning Outcome(s) addressed</b></li> <li>• <b>% of total</b></li> <li>• <b>Assessment due date</b></li> </ul>	Assessment Component	Assessment Description	LO Addressed	% of total	Week due
	CA	MCQ	Basic knowledge of cellular biology	10	10
	CA	Lab practical	Understanding of microscopy	10	9
	AE	Short notes, Essay question, Problem solving question	Overall ability to communicate breadth and depth of learning. Problem based on Genetics.	80	

#### Reassessment Requirements

#### Contact Hours and Indicative Student Workload<sup>2</sup>

**Contact hours: 30**

**Independent Study (preparation for course and review of materials): 25**

**Independent Study (preparation for assessment, incl. completion of assessment): 45**

#### Recommended Reading List

Molecular biology of the Cell

Bruce Alberts 5th ed Garland Science

ISBN 9780815341116

<sup>2</sup> [TEP Guidelines on Workload and Assessment](#)

Biochemistry

Jeremy M. Berg, John L. Tymoczko, Lubert Stryer

7th ed Palgrave-McMillan

ISBN 9781429276351

Human Physiology: From Cells to Systems

Lauralee Sherwood 7th ed. Brookes/Cole

ISBN 9780495826293

Wheater's Functional Histology: A Text and Colour Atlas

Barbara Young 5th ed Churchill Livingstone Elsevier

ISBN 9780443068508

**Module Pre-requisite**

3BIO1 Anatomy and Physiology

**Module Co-requisite**

**Module Website**

**Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.**

School of Medicine

**Module Approval Date**

**Approved by**

**Academic Start Year**

**Academic Year of Date**