

Standard  Institutionally Developed College: N/A

EDGE Compatible: No

**Pre-requisites**

Program Admission

**Co-requisites**

BIOL 1111L - Biology Lab I ( 201103 )

**Course Description**

Provides an introduction to basic biological concepts with a focus on living cells. Topics include chemical principles related to cells, cell structure and function, energy and metabolism, cell division, protein synthesis, genetics, and biotechnology.

**Course Length**

	Minutes	Contact Unit
Lecture:	2250	
Lab 2:	0	
Lab 3:	0	
Practicum/Internship:	0	
Clinical:	0	
Total:	2250	3

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Semester Credit Hours: 3

**Competencies**

Order	Description	Lecture	Lab2	Lab3	Practicum/Internship	Clinical	Total Minutes	Semester Credit Hrs
1	Chemical Principles Related to Cells	330	0	0	0	0	330	0
2	Cell Structure and Function	330	0	0	0	0	330	0
3	Energy and Metabolism	330	0	0	0	0	330	0
4	Cell Division	390	0	0	0	0	390	0
5	Protein Synthesis	390	0	0	0	0	390	0
6	Genetics	425	0	0	0	0	425	0
7	Biotechnology	55	0	0	0	0	55	0
8		0	0	0	0	0	0	0

Order	Description	Lecture	Lab2	Lab3	Practicum/ Internship	Clinical	Total Minutes	Semester Credit Hrs
	<b>Totals for Course BIOL 1111 - Biology I ( version 201003 ):</b>	<b>2250</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2250</b>	<b>3</b>

## Learning Outcomes

### Chemical Principles Related to Cells

Order	Description	Learning Domain	Level of Learning
1	Determine basic atomic structure.	Cognitive	Application
2	Describe types of molecular bonds.	Cognitive	Knowledge
3	Identify the properties of water that make it essential for living organisms.	Cognitive	Knowledge
4	Explain chemical concepts as applied to cellular function.	Cognitive	Comprehension
5	Describe the structure and properties of common organic molecules in living systems.	Cognitive	Knowledge

### Cell Structure and Function

Order	Description	Learning Domain	Level of Learning
1	Describe the structure and function of cell membranes.	Cognitive	Knowledge
2	Explain the passage of molecules across the cell membrane.	Cognitive	Comprehension
3	Describe the nature of the cytoplasm.	Cognitive	Knowledge
4	Explain the structure and function of cellular organelles.	Cognitive	Comprehension
5	Describe the structure and function of the nucleus and its component structures.	Cognitive	Knowledge

### Energy and Metabolism

Order	Description	Learning Domain	Level of Learning
1	Describe the principles that affect energy transformation at the cellular level.	Cognitive	Knowledge
2	Describe the function of enzymes in biological systems.	Cognitive	Knowledge
3	Compare the processes of glycolysis respiration, and fermentation.	Cognitive	Synthesis
4	Describe photosynthesis.	Cognitive	Knowledge

### Cell Division

Order	Description	Learning Domain	Level of Learning
1	Describe the process of replication.	Cognitive	Knowledge
2	Discuss the cell cycle and the process of mitosis.	Cognitive	Comprehension
3	Discuss the process of meiosis.	Cognitive	Comprehension

### Protein Synthesis

Order	Description	Learning Domain	Level of Learning
1	Describe the process of transcription.	Cognitive	Knowledge

Order	Description	Learning Domain	Level of Learning
2	Describe the process of translation.	Cognitive	Knowledge
3	Describe the characteristic features of the genetic code.	Cognitive	Knowledge
4	Describe different mutations and potential consequences.	Cognitive	Knowledge

#### Genetics

Order	Description	Learning Domain	Level of Learning
1	Relate the structure of DNA and RNA to the laws of heredity.	Cognitive	Analysis
2	Explain the relationship between DNA, RNA, and protein synthesis.	Cognitive	Comprehension
3	Interpret the Mendelian laws of heredity.	Cognitive	Comprehension
4	Determine the probability of specific genotypes and phenotypes as a result of monohybrid and dihybrid crosses.	Cognitive	Application
5	Describe selected genetic diseases of humans.	Cognitive	Knowledge

#### Biotechnology

Order	Description	Learning Domain	Level of Learning
1	Describe uses of DNA technology.	Cognitive	Knowledge

No Learning Outcomes entered for this Course Competency.

#### References

Order	Reference Type	Description
1	Book with Author(s) Listed	Audesirk, G., Audesirk, T. & Byers, B.. (2008). Biology: Life on earth. (8th). San Francisco, CA: Benjamin Cummings.
2	Book with Author(s) Listed	Campbell, N. & Reece, J.. (2008). Biology. (8th). San Francisco, CA: Benjamin Cummings.
3	Book with Author(s) Listed	Mader, S.. (2004). Biology. (8th). New York, NY: McGraw Hill.
4	Book with Author(s) Listed	Starr, C. & Taggart, R.. (2006). Biology: The unity and diversity of life. (11th). Belmont, CA: Centage Delmar.
5	Book with Author(s) Listed	Krough, David. (2009). Biology: A Guide to the Natural World. (4th). Benjamin Cummings: San Francisco, CA.
6	Edited Book	(Eds.). (). . . .
7	Professional Web Site	. (). . Retrieved , from