

**2016-2017 CELL BIOLOGY MAJOR****(BACHELOR OF SCIENCE ONLY)**

This program is suitable for students who plan to pursue a professional career in cell biology, to do graduate work in cell biology or another biological science, or who wish to apply to medical, dental, medical technology, or veterinary school. **Students must pass all required courses listed below with a letter grade.**

**Preparatory Subject Matter** (56-66 units)

Chemistry:	General Chemistry: 2A-B-C <b>Or</b> 2AH-BH-CH.  <b>And</b> Organic Chemistry: 118A-B-C (12 units) <b>Or</b> 8A-B (6 units)
Mathematics (MAT):	Calculus: 17A-B-C <b>Or</b> 21A-B (21C recommended)
Biological Sciences (BIS):	Intro to Biology: 2A-B-C.
Physics (PHY):	General Physics: 7A-B-C.

**Depth Subject Matter** (44-49 units). Course prerequisites in brackets; typical quarter(s) offered listed to the right.

Statistics (STA):	100 – Applied Statistics for Biological Sciences [either MAT #B] <b>Or</b> 130A & 130B – Mathematical Statistics: Brief Course	(4 units F,W,S) (8 units F,W)
Biological Sciences:	101 – Genes and Gene Expression [2A-B, OChem A, STA] 102 – Structure and Function of Biomolecules [2A-B, OChem B] 103 – Bioenergetics and Metabolism [102] 104 – Regulation of Cell Function [101, 102]	(4 units – F, W, S) (3 units – F, W, S) (3 units – F, W, S) (3 units – F, W, S)
Molecular and Cellular Biology (MCB):	140L – Cell Biology Lab [104 concurrently] 121 – Molecular Biology [101, 102 concurrently]	(5 units – W only) (3 units – F, W, S)
Developmental Biology:	150 – Developmental Biology [101] <b>Or</b> 163 – Developmental Genetics [MCB 121]	(4 units – W only) (3 units – S only, not every year)
<b>TWO</b> courses from the following:	143 – Cell Biophysics [101-104] 144 – Mechanisms of Cell Division [104] 145 – Cell Signaling [104]	(3 units – S only) (3 units – F only) (3 units – S only)
Restricted Electives:	At least <b>10</b> units from a combination of the following courses: CHE 107A, 107B; EVE 100, 150; MIC 101, 102, 103L, 150, 170; MCB 123, 124, 126, 162, 163, 164, 182, 138, 139, 148, 158, 120L, 160L, 178, 191; NPB 100, 101, 103, 112, 160, 161; PLB 111/111D, 113/113D, 152; PMI 126, 126L, 128; MMI 188. No more than 4 units of research (193, 194, 199) can be used for credit in this category.	

**Unrestricted Electives** Must complete 180 total units, including all majors, minors, and GE courses. The College of Biological Sciences requires 64 total upper division units for graduation.

**Transfer Students** Transfer students who plan to enter UCD as a junior in the fall quarter are very strongly advised to complete organic chemistry and as many other of the freshman and sophomore courses listed above prior to starting at UCD.

Sample Academic Plan

	FALL		WINTER		SPRING	
<b>Year 1</b>	Chem. 2A or 2AH <sup>1</sup>	(5)	Chem. 2B or 2BH	(5)	Chem. 2C or 2CH	(5)
	Math. 17A or 21A <sup>2</sup>	(3-4)	Math. 17B or 21B	(3-4)	Math17C or (21C)	(3-4)
	English/ELWR or GE	(4)	Elective	(3)	Biol. Sci. 2A or 2B*	(4-5)
	FRS Seminar	(1)	GE	(4)	Elective or GE	(3)
			Biol. Sci. 2A (if doing well)*			
<b>Year 2</b>	Biol. Sci. 2A or 2B or 2C*	(5)	Biol. Sci. 2B or 2C*	(5)	Biol. Sci. 101 <sup>3</sup>	(4)
	Chem. 118A	(4)	Chem 118B	(4)	Chem. 118C	(4)
	Stat 100 or <u>130A</u> <sup>4</sup>	(4)	Physics 7A or Stat <u>130B</u> <sup>4</sup>	(4)	Physics 7B	(4)
	GE	(4)	Elective	(1)	Elective	(3)
	Elective	(2)				
<b>Year 3</b>	Biol. Sci. 102	(3)	Biol. Sci. 104	(3)	Biol. Sci. 103	(3)
	Physics 7C	(4)	MCB 121	(3)	MCB <u>145</u> or <u>163</u> <sup>4</sup>	(3)
	GE	(4)	GE	(4)	Electives	(5)
	Electives	(4)	Electives	(5)	UWP 1XX (English Comp Req)	(4)
<b>Year 4</b>	MCB <u>144</u> <sup>4</sup>	(3)	MCB <u>150</u> <sup>4</sup>	(4)	MCB <u>143</u> <sup>4</sup>	(3)
	MIC 102 or other RE	(3)	MCB <u>140L</u> <sup>4</sup>	(5)	MCB <u>145</u> <sup>4</sup>	(3)
	Research Units/RE	(3)	MCB <u>164</u> <sup>4</sup>	(3)	Research Units/RE	(3)
	GE	(4)	Research Units/RE	(3)	Electives/GE	(5)
			Electives	(2)		

**MUST HAVE 180 TOTAL UNITS & 64 UPPER DIVISION UNITS TO GRADUATE**

<sup>1</sup> Students with a good high school chemistry and physics background, good math skills and who score satisfactorily on diagnostic examinations may choose to take the Chem. 2AH (honors) series. If they do not do well, they should continue on with Chem. 2B and 2C.

<sup>2</sup> Math 21A requires a knowledge of analytical geometry and a facility for math. Students who do poorly in Math 21A should continue on with the Math 17 series.

<sup>3</sup> Biol. Sci. 101 should be taken after completing CHE 118A and may be taken concurrently with CHE 118B. BIS 102 requires prior completion of CHE 118B. Transfer students lacking organic chemistry may have to postpone 101 and 102 until the Spring Quarter. (Biol. Sci. 101, 102, 103 and 104 are taught all three quarters.)

<sup>4</sup> Underlined courses are taught only during the quarter indicated.

\*Only students strong in math and science should start the BIS 2A,B,C series in winter of freshman year. Otherwise, BIS 2 would start in either spring or the following fall.