

BIOENGINEERING ENGINEERING TRANSFER, AS OSU ADVISING GUIDE

Prerequisites and Course Availability per Term
(for complete information, see 2016-2017 UCC Catalog)

REVISED 11/19/16

	UCC Course No. and Course Name	Term Offered				Credits	Prerequisites/Notes		OSU	Credits													
		F	W	S	S				Course No.														
Term 1	CH 221 ^{E, 2}	General Chemistry I /Lec/Lab/Rec				x				5	MTH 111												
	ENGR 111	Engineering Orientation I				x					3	MTH 65											
	MTH 251 ^{E, 2}	Calculus I				x	x				5	MTH 112											
	WR 121 ^{E, 2}	English Composition: Intro to Argument				x	x	x	x		4	WR 115 or Placement Test											
Term 2	CH 222	General Chemistry II					x				5	CH 221											
	HPE 295	Wellness & Health				x	x	x	x		3												
	ENGR 112 ^{E, 2}	Problem Solving & Technology					x				3	ENGR 111											
	MTH 252 ^E	Calculus II					x	x			4	MTH 251											
	BI 231	Human Anatomy & Physiology				x	x				4	CH 104 or CH 112											
Term 3	Perspectives ⁶	General Ed Req - See Advisor				x	x	x	x		3	Perspectives Elective											
	CH 223 ^{E, 2}	General Chemistry III					x				5	CH 221											
	MTH 253 ^{E, 2}	Calculus III						x			4	DRF 112 CAD I											
	MTH 261 ^{E, 2}	Linear Algebra						x			2	MTH 111 Algebra											
	ENGR 245 ³	Engineering Graphics - Solidworks						x			3	DRF 112 CAD I											
Summer																							
Term 4	ENGR 201 ^{E, 2}	Electrical Fundamentals				x					4	MTH 251 Co-requisite											
	ENGR 211 ^{E, 2}	Statics				x					4	MTH 112											
	MTH 254 ^{E, 2}	Vector Calculus I				x					4	MTH 252											
	PH 211 ^E	Physics I w/Calculus				x					5	MTH 251 Co-requisite											
Term 5	ENGR 212 ^{3, 4}	Dynamics					x				4	ENGR 211											
	MTH 256 ^{E, 2}	Differential Equations					x				4	MTH 252											
	PH 212 ^{E, 2}	Physics II w/Calculus					x				5	PH 211											
	WR 227	Technical Report Writing				x	x	x	x		4	WR 222											
	BI 234	Microbiology				x	x	x			4	CH 221											
Term 6	ENGR 213 ³	Strength of Materials						x			4	ENGR 211											
	SP 111 ^{E, 2}	Public Speaking				x	x	x			4	WR 095											
	PH 213 ^{E, 2}	Physics III w/Calculus						x			5	PH 212											
	Perspectives ⁶	General Ed Req - See Advisor				x	x	x	x		3	Perspectives Elective											
	BI 233	Human Anatomy & Physiology						x	x		4	BI 231 & Instructor Approval											
TOTAL DEGREE CREDITS⁷										111						94							

*A grade of "C" or better is required in all courses.

Program Advisor:

NOTES:

- This is a rigorous degree program and may take a minimum of 5 years to complete. Transfer students typically take 3 years of course work at OSU. Meeting with Advisor early and development of term x term planner is important
- ^ERequired by OSU College of Engineering for entry into the Pro Program
- ENGR 245, ENGR 212, ENGR 213 are approved electives for OSU "Engineering Selections". See attached OSU Advising Guide. Note that OSU "Engineering Selections" can be taken at OSU during pro-school, and that other approved electives are available at OSU. Taking the courses at OSU would reduce UCC total credits by 12 credits for total of 99 credits.
- UCC CH 241 & 242 Organic Chemistry courses are equivalent to OSU CH 331 & 332 Organic Chemistry. There are several alternatives for taking these courses. Students at UCC for 3 years could take at UCC. Note that UCC CH 242 could potentially be taken in winter quarter instead of ENGR 212 (and Engineer Selection taken at OSU). Another option is to take CH 331 & 332 at OSU for students that will be at OSU for 3 years. See Advisor.
- OSU offers CBEE 280(6 credits) online during summer quarter with OSU advisor approval. CBEE 280 is the online equivalent of CBEE 211 and CBEE212.
- Students can take 5 Perspective Electives for Humanities/Social Science at UCC that transfer to OSU as General Ed requirements. See Advisor.
Link to OSU/UCC General Ed Transfer for Bac Core Courses is <http://admissions.oregonstate.edu/baccalaureate-core-course-equivalencies-umpqua-community-college>
- A maximum of 108 credit hours count towards the AS degree. Additional courses can be taken at UCC. A maximum of 124 credits (OSU course credits) will transfer.

First Year (46 credits)			Second Year (51 credits)			Third Year (47 credits)			Fourth Year (48 credits)		
Fall	Winter	Spring	Fall	Winter	Spring	Pro School Fall	Winter	Spring	Fall	Winter	Spring
*Differential Calculus (MTH 251) (4FWS)	*Integral Calculus (MTH 252) (4FWS)	*Vector Calculus (MTH 254) (4FWS)	Perspective (3FWS)	*Applied Diff Equations (MTH 256) (4FWS)	*Matrix & Power series methods (MTH 306) (4FWS)	General Biochemistry BB 450 (4FWS)	General Biochemistry BB 451 (3WS)	Biomedical Eng Principles BIOE 340 (3S)	Biochemistry/lab BB 493 (3F)	Biochemistry/lab BB 494 (3W)	Engineering Selector ² (3)
*General chemistry CH 231 (4FW)	General chemistry CH 232 (4WS)	General chemistry CH 233 (4S)	*Organic Chemistry CH 331 (4FW)	*Organic Chemistry CH 332 (4WS)	*Statics ENGR 211 (3FWS)	Transport I CHE 331 (4F)	Transport II CHE 332 (3W)	Transport III CHE 333 (3S)	Boreadors BIOE 457 (3F)	Bioengineering Laboratory BIOE 415 (3)	BIOE selection ³ (3)
CH Lab 261 (1F)	CH Lab 262 (1W)	CH Lab 263 (1S)									
BIOE Operation CBEE 101 (3F)	*ENGR Problem Solving CBEE 102 (3W)	*General Physics PH 211 (4FWS)	*General Physics PH 212 (4FWS)	*General Physics PH 213 (4WS)	*Electrical ENGR Fundamentals ENGR 201 (3FWS)	Thermodynamics CHE 311 (3F)	Social Justice, Ethics in ENGR BIOE 420 (3W)	Biomaterials & Bionterfaces BIOE 351 (3)	Bioengineering Process Design BIOE 490 (4)	Bioengineering Product Design BIOE 491 (4)	Bioengineering product design II BIOE 492 (4)
Lifetime fitness HHS 231 (2) and HHS 24X or PAC(1) (3FWS)	*English Composition WR 121 (3FWS)	*Speech Communication COMM 111/114 (3FWS)	*Material Balances OBEE 211 (3F)	*Energy Balances CBEE 212 (3W)	Process Analysis CBEE 213 (4S)	Professionalism & engr ethics CBEE 320 (3F)	Engineering Selection (3)	Perspectives (3)	Process Eng Laboratory CBEE 414a (3F)	BIOE Selector ³ (3W)	Synthesis (3)
			Anatomy & Physiology BI 231 (3F)	Biology selection ¹ (2 or 4)	Anatomy & Physiology BI 233 (3S)	Perspectives (3)	Tech Writing WR 327 (3FWS)	DDP+ (3)	Engineering selection ² (3F)	Perspectives (3)	Synthesis (3)
15	15	16	17	17	17	17	15	15	16	16	16

BIOENGINEERING

Numbers in parenthesis are credit hours per class. Blue-highlighted courses are pre-engineering core

Revised / Updated—9/06/2016

* Required for admission into the Bioengineering Professional Program. We'll accept the combination of MTH 253 and MTH 341 as equivalent to MTH 306. CBEE 211 and CBEE 212 are enforced prerequisites for CHE 311 and CHE 331.

^ Satisfies the WIC requirement

BIOE-DPD must be taken with A/F grading. Only Perspective, Synthesis, HHS 231/24*, PAC and FREE can be taken with S/U grading.

Biology courses from which students may select (one course only)

Anatomy and Physiology Laboratory (BI 241, Fall) 2 credits or **Introductory Microbiology (MB 230, FWS) 4 credits**

Engineering courses from which students may select (at least 9 credits).

Solar Technologies (CHE 451) 3 credits

Chemical thermodynamics (CHE 312) 3 credits

Polymer engineering and science (CHE 445) 4 credits

Chemical Process Dynamics and Simulation (CHE 361) 3 credits

Process control (CHE 461) 3 credits

Conventional & Alternative Energy Systems (CHE 450) 3 credits

Dynamics (ENGR 212) 3 credits

Strengths of materials (ENGR 213) 3 credits

Engineering graphics and 3-D modeling (ENGR 248) 3 credits

Bioenergy Systems (BEE 499 or 475) 3 credits

Surface Analysis (BIOE 4XX) 3 credits (number can vary)

Biological Networks (CS 446) 3 credits

Upper division BIOE courses from which students may select (at least 6 credits). Note that courses used to satisfy this requirement CANNOT be used to satisfy the engineering science selection above.

Cell Engineering (BIOE 459) 3 credits

Bioseparations (BIOE 462) 3 credits

Bioconjugation or Surface Analysis (BIOE 499) (number can vary)

Biological Networks (CS 446) 3 credits

See next page/reverse for BIOE-DPD approved courses (must be taken with A/F grading)