

2020-21 Sustainable Bioproducts (Business) Course Plan College of Forest Resources & Environmental Science-Michigan Tech							
Semester	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Total Credits (120 + 3 co-curriculars)
First Year Fall	BL1400 Principles of Biology (3)	BL1410 Principles of Biology Lab (1) Co-req: BL1400	MA1135 Calculus for Life Sciences (4) Prereq: MA1031 or MA1032	BUS1100 Intro to Business (3)	UN1015 Composition (3)	Co-curricular (1) See list	15
First Year Spring	ACC2000 Accounting Principles (3)	FW1050 Natural Resources Professional (2)	CH1150 University Chemistry Lecture (3) Coreq: MA1031 or MA1032 or MA1135	CH1151 University Chemistry Lab (1) Coreq: CH1150	UN1025 Global Issues (3)	HASS Gen Ed Requirement (3) See list	15
Second Year Fall	FW2030 Conservation of Nature (2)	PH1110 College Physics lecture (3)	PH1111 College Physics lab (1)	MA2720 Statistical Methods (4) Prereq: MA1030 or MA1032	Critical and Creative Thinking Gen Ed (3) Requirement See list	Co-curricular (1) See list	14
Second Year Spring	FW1035 Wood Anatomy (4)	EC2001 Principles of Economics (3) Pre-req: MA1135	BUS2200 Business Law (3)	Social Responsibility and Ethical Reasoning Gen Ed Requirement (3) See list	HASS Gen Ed Requirement (3) See list		16
Third Year Fall	FW3313 Sustainability Science (3)	FW3090 Mechanics of Wood Materials (3)	FW3097 Forest Biomaterials (3)	ENT3950 Enterprise III(1)	HASS Gen Ed Requirement (3) See list	Free Elective (3)	16
Third Year Spring	FW4081 Circular Economy (3)	FW4080 Forest Economics & Finance (3)	FIN3000 Principles of Finance (3) Pre-req: ACC2000 & MA1135	ENT3960 Mechanics of Wood Materials (1)	Free elective (2)	HASS Gen Ed Requirement (3) See list	15
Fourth Year Fall	FW3098 Adding Value to Forest Biomaterials (2)	ENT4900 Senior Enterprise (2)	Management Elective (3) See list below	HU3120 Technical and Professional Communications (3)	MKT3000 Principles of Marketing (3)	Free Elective (4)	17
Fourth Year Spring	ENT4910 Senior Enterprise (2)	OSM3000 Operations and Supply Chain Mngt (3)	Internship Experience (2-4) See list below	Free Elective (5-7)	Co-curricular (1) See list		15

Management Elective (Choose one)		
Course number	Course Title	Prerequisite
ACC2100	Accounting Principles II	ACC2000
ACC3500	Managerial/Cost Accounting I	ACC2100
MGT2000	Team Dynamics and Decision	Sophomore or higher
MGT3100	Leadership Development	Sophomore or higher
MGT3800	Entrepreneurship	Junior or higher
MKT3600	Marketing Data Analysis	(MA2720 or BUS2100) and MKT3000
OSM3150	Intro to Supply Chain Management	OSM3000; Junior or higher

Internship Experience (Choose 2-4 credits)		
Course number	Course Title	Prerequisite
FW4000 (1) must repeat for at least 2 credits total	Professional Experience	Must have an approved internship before enrolling; permission of instructor
FW4840 (4)	Senior Research Thesis	Permission of instructor; senior level; FW3190
UN3002 (3)	Undergraduate Cooperative Education 1	Departmental permission
Varies	Study Abroad	Requires prior approval from director

2020-21 Sustainable Bioproducts (Circular Economy) Course Plan
College of Forest Resources & Environmental Science-Michigan Tech

Semester	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Total Credits (120 + 3 co-curriculars)
First Year Fall	BL1400 Principles of Biology (3)	BL1410 Principles of Biology Lab (1) Co-req: BL1400	MA1135 Calculus for Life Sciences (4) Prereq: MA1031 or MA1032	BUS1100 Intro to Business (3)	UN1015 Composition (3)	Co-curricular (1) See list	15
First Year Spring	EC2001 Principles of Economics (3) Pre-req: MA1135	FW1050 Natural Resources Professional (2)	CH1150 University Chemistry Lecture (3) Coreq: MA1031 or MA1032 or MA1135	CH1151 University Chemistry Lab (1) Coreq: CH1150	UN1025 Global Issues (3)	HASS Gen Ed Requirement (3) See list	15
Second Year Fall	FW2030 Conservation of Nature (2)	PH1110 College Physics lecture (3)	PH1111 College Physics lab (1)	MA2720 Statistical Methods (4) Prereq: MA1030 or MA1032	Critical and Creative Thinking Gen Ed (3) Requirement See list	Co-curricular (1) See list	15
Second Year Spring	MKT3000 Principles of Marketing (3)	FW1035 Wood Anatomy (4)	Free Elective (3)	Social Responsibility and Ethical Reasoning Gen Ed Requirement (3) See list	HASS Gen Ed Requirement (3) See list		16
Third Year Fall	FW3313 Sustainability Science (3)	FW3090 Mechanics of Wood Materials (3)	Fine Art Elective-See list below(3)	FW3097 Forest Biomaterials (3)	ENT3950 Enterprise III(1)	EC3300 Industrial Organization (3)	14
Third Year Spring	FW4081 Circular Economy (3)	Engineering/Business Elective (3) See list below	ENT3960 Mechanics of Wood Materials (1)	HASS Gen Ed Requirement (3) See list	HASS Gen Ed Requirement (3) See list	Free elective (3)	16
Fourth Year Fall	FW3098 Adding Value to Forest Biomaterials (2)	ENT4900 Senior Enterprise (2)	ENG4510 Sustainable Futures (3)	Eng/Business Elective (3) See list below	Free elective (6)		16
Fourth Year Spring	ENT4910 Senior Enterprise (2)	OSM3000 Operations and Supply Chain Mngt (3)	Internship Experience (2-4) See list below	HU3120 Technical and Professional Communications (3)	Free elective(2-5)	Co-curricular (1) See list	16

Fine Arts Elective (Choose one)			
Course number	Course Title	Prerequisite	Semester
ART1110	Art + Design Studio	Restricted to FR,SO, & JR	Fall, Summer
ART2110	Outdoor Sculpture	None	Summer-alt even
ART2160	Creative Practices	None	On demand
ART2190	Art and Nature	None	Fall
Internship Experience (Choose 2-4 credits)			
Course number	Course Title	Prerequisite	Semester
FW4000 (1) must repeat for a minimum of 2 credits	Professional Experience	Must have an approved internship before enrolling; permission of instructor	All
FW4840 (4)	Senior Research Thesis	Permission of instructor; senior level; FW3190	All
UN3002(3)	Undergraduate Cooperative Education 1	Departmental permission	All
Varies	Study Abroad	Requires prior approval from director	All
Eng/Business Elective (Choose 6 credits)			
Course number	Course Title	Prerequisite	Semester
CM3979 (1)	Alternative Energy	CH1150 & MA1135	Fall
CMG4800(3)	Sustainable Construction	JR or SR	Spring
MEEM4685 (3)	Env Resp Design & Manuf	SR only	Alt. Spring-even years
MGT2000(3)	Team Dynamics	SO,JR or SR	Fall, Spring
MGT3800 (3)	Entrepreneurship	JR or SR	Fall
MSE4760 (3)	Env Eng for Materials Processing	JR or SR	Fall
MSE4777 (3)	Distrib Additive Manufacturing	None	Fall
Any ENT course not already required	Varies	Varies	Varies

2020-21 Sustainable Bioproducts (Structures) Course Plan College of Forest Resources & Environmental Science-Michigan Tech							
Semester	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Total Credits (120 + 3 co-curriculars)
First Year Fall	BL1400 Principles of Biology (3)	BL1410 Principles of Biology Lab (1) Co-req: BL1400	MA1135 Calculus for Life Sciences (4) Prereq: MA1031 or MA1032	BUS1100 Intro to Business (3)	UN1015 Composition (3)	Co-curricular (1) See list	15
First Year Spring	FW1035 Wood Anatomy (4)	FW1050 Natural Resources Professional (2)	CEE1001-Sustainable and Civil Eng. Practice (1)	Free Elective (3)	UN1025 Global Issues (3)	HASS Gen Ed Requirement (3) See list	16
Second Year Fall	FW2030 Conservation of Nature (2)	PH1110 College Physics lecture (3)	PH1111 College Physics lab (1)	MA2720 Statistical Methods (4) Prereq: MA1030 or MA1032	Critical and Creative Thinking Gen Ed (3) Requirement See list	Co-curricular (1) See list	14
Second Year Spring	CMG 2120 Statics and Strength of Material Construct (4)	EC2001 Principles of Economics (3) Pre-req: MA1135	CH1150 University Chemistry Lecture (3) Coreq: MA1031 or MA1032 or MA1135	CH1151 University Chemistry Lab (1) Coreq: CH1150	Social Responsibility and Ethical Reasoning Gen Ed Requirement (3) See list	Free elective (1)	15
Third Year Fall	FW3313 Sustainability Science (3)	FW3090 Mechanics of Wood Materials (3)	Business Elective (3) See list below	FW3097 Forest Biomaterials (3)	ENT3950 Enterprise III(1)	CMG3250 Structural Analysis & Design (3)	16
Third Year Spring	ENT3960 Mechanics of Wood Materials (1)	Any ENT course not already required (1-2)	HASS Gen Ed Requirement (3) See list	HASS Gen Ed Requirement (3) See list	Free Elective (8-9)		16
Fourth Year Fall	FW3098 Adding Value to Forest Biomaterials (2)	CMG4800 Sustainable Construction (3)	ENT4900 Senior Enterprise (2)	MKT3000 Principles of Marketing (3)	HU3120 Technical and Professional Communications (3)	Free elective (3-4)	16
Fourth Year Spring	FW4081 Circular Economy (3)	ENT4910 Senior Enterprise (2)	CEE4233 Structural Timber Design (3)	HASS Gen Ed Requirement (3) See list	Internship Experience (3) See list below	Co-curricular (1) See list	15

Business Elective (Choose one)		
Course number	Course Title	Prerequisite
ACC2000	Accounting Principles 1	None
BUS2200	Business Law	None
FIN3000	Principles of Finance	None
MGT2000	Team Dynamics and Decision Making	May not be a freshman
MGT3100	Leadership Development	May not be a freshman
OSM3000	Operations and Supply Chain Mngmt	MA1135 and MA2720; JR or SR standing

Internship Experience (Choose one)		
Course number	Course Title	Prerequisite
FW4000	Professional Experience	Must have an approved internship before enrolling; permission of instructor
FW4840	Senior Research Thesis	Permission of instructor; senior level; FW3190
UN3002	Undergraduate Cooperative Education	Departmental permission
Varies	Study Abroad	Requires prior approval from director