

A regular meeting of the University Curriculum Committee was held on January 20, at 2:00 p.m.

**Members present:** Chair Carole Makela, Professors Ed DeLosh, Bradley Goetz, Brad Reisfeld, Paul Mallette, Howard Ramsdell, Sally Sutton, Mike Hogan, VPUA Kelly Long (ex-officio) and Graduate Student Representative Kevin Jablonski.

**Curriculum Unit:** Kayleen Allen.

**Guests:** Julia Murphy (Registrar's Office) and Linda Selkirk (CSU Online).

**Absent:** Shelly Ellerby, Beth Oehlerts and Undergraduate Student Representative.

### Minutes

The Minutes of December 9, 2016 were approved.

### Consent Agenda

The Consent Agenda was approved.

<i>New Courses</i>	<i>Effective Term</i>
<b>BZ 670 Teaching Scientific Reasoning &amp; Argumentation 3(3-0-0) F</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> BS or BA in natural sciences. Credit not allowed for both BZ 670 and BZ 680A1.	
<b>Restriction:</b> Must be a: Graduate, Professional.	
<b>Description:</b> Nature of science (NoS), scientific reasoning, scientific argumentation, and instructional strategies develop science argumentation and communication skills in undergraduate courses. Creation of instructional materials for a teaching portfolio.	
<b>Grade Mode:</b> Traditional.	
<b>FIN 612 Private Equity and Venture Capital 1(1-0-0) F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> BUS 640.	
<b>Registration Information:</b> Offered as an online course only. This is a partial semester course. Credit not allowed for both FIN 612 and FIN 669.	
<b>Description:</b> The role and function of the private equity market and key players in that market, including crowdfunding, angel investors, and venture capitalists. Application of financial tools and models to value venture investments, evaluate risk and return, and negotiate deals	
<b>Grade Mode:</b> Traditional.	
<b>MECH 578/BIOM 578 Musculoskeletal Biosolid Mechanics 3(3-0-0) F</b>	Fall 2017
<b>Prerequisite:</b> CIVE 360.	
<b>Registration Information:</b> Graduate standing. Credit allowed for only one of the following: BIOM 578, MECH 578, or MECH 580A7. <b>Description:</b> Application of engineering concepts to quantify the mechanical behavior of load-bearing biological tissues and orthopaedic implant performance.	
<b>Grade Mode:</b> Traditional.	
<b>MSE 503 Mechanical Behaviors of Materials 3(3-0-0) S</b>	Fall 2017
<b>Prerequisite:</b> MSE 501 or MSE 502A or MECH 331; MATH 340 or MATH 345.	
<b>Registration Information:</b> Senior standing.	
<b>Description:</b> The mechanical behavior of metals, polymeric, ceramic, and composite materials in mechanical designs from a structure to processing to properties perspective. Practical and specific performance analyses of structural materials are examined.	
<b>Grade Mode:</b> Traditional.	

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<b>MSE 504 Thermodynamics of Materials 3(3-0-0) F</b>	Fall 2017
<b>Prerequisite:</b> CBE 210 or CHEM 476 or MECH 331 or PH 361; MATH 340 or MATH 345.	
<b>Registration Information:</b> Senior standing.	
<b>Description:</b> The determination of whether and the means by which a given reaction can occur. Macroscopic and microscopic solid-state thermodynamics with experimental methodologies for characterizing them, with a focus on thermodynamic and statistical mechanical aspects of material structure-property relationships.	
<b>Grade Mode:</b> Traditional.	

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<b>MSE 505 Kinetics of Materials 3(3-0-0) S</b>	Fall 2017
<b>Prerequisite:</b> MSE 504.	
<b>Registration Information:</b> Senior standing.	
<b>Description:</b> The determination of whether and the means by which a given reaction can occur. Macroscopic and microscopic solid-state kinetics with experimental methodologies for characterizing them, with a focus on the kinetic aspects of material structure-property relationships.	
<b>Grade Mode:</b> Traditional.	

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<b>MSE 695 Independent Study Var[1-5] F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Written consent of advisor.	
<b>Restriction:</b> Graduate standing.	
<b>Description:</b> Independent study of special topics in materials science and engineering.	
<b>Grade Mode:</b> Instructor Option.	

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<b>MSE 784 Supervised College Teaching Var[1-5] F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Written consent of advisor.	
<b>Restriction:</b> Must be a: Graduate, Professional.	
<b>Description:</b> Supervised college teaching in materials science and engineering.	
<b>Grade Mode:</b> Instructor Option	

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<b>MSE 795 Independent Study Var[1-5] F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Written consent of advisor.	
<b>Restriction:</b> Must be a: Graduate, Professional.	
<b>Description:</b> Advanced independent study of special topics in materials science and engineering.	
<b>Grade Mode:</b> Instructor Option.	

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<b>MSE 799 Dissertation Var[1-12] F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Written consent of advisor.	
<b>Restriction:</b> Must be a: Graduate, Professional.	
<b>Description:</b> Dissertation in materials science and engineering.	
<b>Grade Mode:</b> Instructor Option.	

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<b>MU 110 Music and Technology 3(2-2-0) As Needed</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Must register for lecture and laboratory.	
<b>Description:</b> Historical and cultural perspectives on the role of technology in music combined with applied skills in digital music production.	
<b>Grade Mode:</b> Traditional.	
[Approved as <a href="#">AUCC 3B: Arts &amp; Humanities</a> ]	

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<b>MU 132 Exploring World Music 3(3-0-0) F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Credit not allowed for both MU 132 and MU 380A4.	
<b>Description:</b> Global aspects of music and its meaning with connections to the environment, sound, and world cultures.	
<b>Grade Mode:</b> Traditional	
[Approved as <a href="#">AUCC 3E: Global &amp; Cultural Awareness</a> ]	

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<b>MU 592D Seminar: Music Education Var[1-3] As Needed</b>	Fall 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> Graduate standing. May be repeated up to three times for credit.	
<b>Description:</b> Special Topics in Music Education.	
<b>Grade Mode:</b> Traditional.	

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<b>PSY 493 Capstone Seminar 3(0-0-3) F, S</b>	Fall 2017
<b>Prerequisite:</b> PSY 210; PSY 250; PSY 252	
<b>Registration Information:</b> Senior standing. Sections may be offered: Online.	
<b>Description:</b> Special, controversial, and emerging topics in psychology, considered in the context of foundational knowledge and principles from the field.	
<b>Grade Mode:</b> Traditional	
[Approved as <a href="#">AUCC 4C: Capstone Experience</a> for the following: Major in Psychology, General Psychology Concentration Major in Psychology, Industrial/Organization Psychology Concentration Major in Psychology, Mind, Brain, and Behavior Concentration]	

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<b>RRM 410 Food Safety Management 2(2-0-0) F</b>	Fall 2017
<b>Prerequisite:</b> (CHEM 103 or CHEM 107 or CHEM 111) and RRM 310	
<b>Registration Information:</b> Junior standing.	
<b>Details:</b> Management and practical applications of safe food service including sanitation, food borne illness, worker hygiene, proper food temperatures and handling, hazard analysis critical control points, local/state/federal health rules and regulations. ServSafe® Manager Certification.	
<b>Grade Mode:</b> Traditional.	

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<b>STAT 384 Supervised College Teaching Var[1-3] F, S, SS</b>	Fall 2017
<b>Prerequisite:</b> STAT 342.	
<b>Registration Information:</b> Sophomore standing. Written consent of instructor. A maximum of 10 combined credits for all 384 and 484 courses are counted toward graduation requirements.	
<b>Description:</b> Participation as a statistics tutor.	
<b>Grade Mode:</b> Traditional	

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<b><i>Study Abroad Courses</i></b>	<b><i>Effective Term</i></b>
<b>ENGR 382A Study Abroad: Grand Challenges in Engineering – China</b> 3(0-0-3) SS [3 <sup>rd</sup> offering]	Summer 2017
<b>Prerequisite:</b> None.	
<b>Registration Information:</b> <a href="#">Credit not allowed for both ENGR 382 and ENGR 382A.</a>	
<b>Description:</b> Faculty-led study abroad program that includes cultural, language, and engineering instruction. Course will be held at a host institution in China.	
<b>Grade Mode:</b> Traditional	

<b>SPCM 370A Study Abroad: Bridging Cultures–USA-Italy 3(3-0-0) SS</b>	Summer 2017
<b>Prerequisite:</b> SPCM 200. <b>Registration Information:</b> Credit allowed for only one of the following: SPCM 370A, SPCM 382, or SPCM 382A. <b>Description:</b> Theory, concepts, principles, research methods, and practical skills in the areas of intercultural and cross-cultural communication, construction and negotiation of Italian identity (italianità), and strategies of an effective dialogue with a global mindset. The aim of the course is to transform its participants into culturally aware and skilled global citizens, with the empirical experience of cultural bridging. <b>Grade Mode:</b> Traditional	
<b>SPCM 470A Study Abroad: Cinematic Rome 3(3-0-0) SS</b>	Summer 2017
<b>Prerequisite:</b> Completion of AUCC Category 2. <b>Registration Information:</b> Must have concurrent registration in SPCM 370A. Completion of AUCC Category 2. Credit allowed for only one of the following: SPCM 470A, SPCM 482, or SPCM 482A. <b>Description:</b> Evaluate and discuss ten primary films, along with excerpts from a number of others. Topics: Images of Ancient Rome; Italian Fascism and Its Memory; Italian Neorealism; Images of “Americans” in Rome, and Rome in America; Fellini’s Rome; and Urban Angst, Roman Style. Analyze how Rome functions as a “character” in the movies, the artistic representations of Roman monuments and streetscapes, and the rhetorical functions of Italian cinema. <b>Grade Mode:</b> Traditional	
<b><i>Major Changes to Courses</i></b>	<b><i>Effective Term</i></b>
<b>AGED 244 Power, <u>Structure, and Tech.</u> Systems in <u>Ag Ed Agricultural Education</u> <del>31(21-30-0) E, S</del></b>	Fall 2017
<b>Prerequisite:</b> None. <b>Registration Information:</b> <u>Must register for lecture and laboratory.</u> <b>Description:</b> Development of competencies and theory related to agricultural power, <u>structure, and technical</u> systems utilized in school-based agricultural education programs. <b>Grade Mode:</b> Traditional.	
<b>ATS 772 <u>Aerosol Physics, Chemistry, Clouds &amp; Climate</u> <del>Aerosol Chemistry</del> <del>32(32-0-0) F</del></b>	Fall 2017
<b>Prerequisite:</b> (CHEM 114 and MATH 161) and (PH 122 or PH 142). <b>Registration Information:</b> None. <b>Restriction:</b> Must be a: Graduate, Professional. <b>Description:</b> <u>The pPhysics and chemistry of atmospheric aerosols including composition, surface properties, size, and interaction with radiation and clouds, including the development of research-grade models of aerosols, clouds, and radiation. sources, sinks.</u> <b>Grade Mode:</b> Traditional.	
<b>CON 265 <u>Plan Reading and Quantity Survey</u> <del>Construction Estimating I</del> <del>3(2-2-0) F, S</del></b>	Fall 2017
<b>Prerequisite:</b> CON 131 and CON 151. <b>Registration Information:</b> Must register for lecture and laboratory. <u>Required field trips.</u> <b>Description:</b> <u>Practice in construction document reading, interpretation and analysis for quantity surveying and material quantity organizing using industry-recognized methods including, but not limited to, a project manual-based work breakdown structure. Integration of construction materials and methods into construction systems that will be incorporated in projects.</u> <b>Grade Mode:</b> Traditional.	
<b>E 607A Teaching Writing: Composition and Rhetoric 3(3-0-0) F, S</b>	Fall 2017
<b>Prerequisite:</b> None. <b>Registration Information:</b> None. <b>Restriction:</b> Must be a: Graduate, Professional. <b>Description:</b> <u>Addresses theoretical and applied understandings of reading and writing processes in the first-year college writing classroom; considers practical implications for professional practice in the teaching of writing; critically examines theory, disciplinary conventions, and policies in regard to writing pedagogy</u> <b>Grade Mode:</b> <del>S/U Sat/Unsat Only</del> <u>Traditional.</u>	

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**ETST 205 Ethnicity and the Media 3(3-0-0) F**

Fall 2017

**Prerequisite:** None.

**Registration Information:** [Sections may be offered: Online.](#)

**Description:** Ethnic representation across time as represented in auto/biography, fiction, poetry, and popular media.

**Grade Mode:** Traditional

[existing AUCC 3E: Global & Cultural Awareness and gtP: Human Behavior, Culture, or Social Frameworks (GT-SS3)]

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**HDFS 410 Socioemotional Development in Childhood 3(3-0-0) F, S, SS**

Fall 2017

**Prerequisite:** HDFS 310.

**Registration Information:** Completion of 60 credits. Sections may be offered: Online. ~~Credit allowed for only one of the following: HDFS 410, HDFS 351, HDFS 401.~~

**Description:** Socioemotional development in children and the influence of biology and socialization within diverse family, school and cultural contexts. Evidence-based practices for helping professionals who will serve children ages 3-8.

**Grade Mode:** Traditional

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**HIST 101 Western Civilization, Modern 3(3-0-0) F, S, SS**

Fall 2017

**Prerequisite:** None.

**Registration Information:** [Sections may be offered: Online.](#)

**Description:** Historical development of Western civilization from c. 1600C.E. to the contemporary era.

**Grade Mode:** Traditional.

[existing AUCC 3D: Historical Perspectives and gtP: History (GT-HI1)]

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**MU 118 Music Theory II ~~3~~4(3-~~2~~0-0) S**

Fall 2017

**Prerequisite:** [MU 117.](#) ~~None.~~

**Registration Information:** ~~Must register for lecture and laboratory.~~ [None.](#)

**Description:** Four-part diatonic writing; diatonic [sequences modulation; diatonic sight singing, ear training, and related linear techniques; diatonic modulation](#) ~~keyboard harmony skills.~~

**Grade Mode:** Traditional

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**MU 217 Music Theory III ~~3~~4(3-~~0~~2-0) F**

Fall 2017

**Prerequisite:** MU 118.

**Registration Information:** ~~Must register for lecture and laboratory.~~ [None.](#)

**Description:** [Introduction to chromatic harmony; analysis of small forms.](#) ~~Harmonic language of the 17<sup>th</sup> and 18<sup>th</sup> centuries; diatonic and chromatic sight singing, ear training, and keyboard harmony skills.~~

**Grade Mode:** Traditional

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**MU 218 Music Theory IV ~~3~~4(3-~~0~~2-0) S**

Fall 2017

**Prerequisite:** MU 217.

**Registration Information:** ~~Must register for lecture and laboratory.~~ [None.](#)

**Description:** [Introduction to sonata form analysis; Introduction to post-tonal music analysis](#) ~~Late 18<sup>th</sup> and early 19<sup>th</sup> century harmonic and formal language; diatonic, chromatic, and modal sight singing, ear training, and keyboard harmony skills.~~

**Grade Mode:** Traditional

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**WS 200 Introduction to Women's Studies 3(3-0-0) F, S, SS**

Fall 2017

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Description:** Examination of gender roles in work, education, spirituality, relationships, health, institutions and organizations.

**Grade Mode:** Traditional

[Approved as [AUCC 3C: Social/Behavioral Science](#)]



### New Graduate Certificates

Warner College of Natural Resources  
Department of Human Dimensions of Natural Resources  
Graduate Certificate in Adventure Tourism

Effective Fall 2017

Additional coursework may be required due to prerequisites.

Code	Title	Credits
<u>NRRT 530</u>	Insight into the Adventure Tourism Industry	2
<u>NRRT 531</u>	Building an Adventure Tourism Enterprise	2
<u>NRRT 532</u>	Leading the Adventure Tourism Experience	2
<u>NRRT 533</u>	Adventure Tourism Policy and Planning	2
<u>NRRT 534</u>	Applications in the Outdoor Products Industry	2
<u>NRRT 655</u>	Tourism Marketing Concepts and Applications	2
<b>Program Total Credits:</b>		<b>12</b>

\*This certificate may have courses in common with other graduate certificates. A student may earn more than one certificate, but a given course may be counted only in one certificate.



College of Business  
Department of Computer Information Systems  
Graduate Certificate in Business Analytics and Accounting Systems

Effective Fall 2017

Additional coursework may be required due to prerequisites.

Code	Title	Credits
<u>ACT 550</u>	Accounting Information Technologies	3
<u>CIS 570</u>	Business Intelligence	3
<u>CIS 575</u>	Applied Data Mining and Analytics in Business	3
<b>Program Total Credits:</b>		<b>9</b>

\*This certificate may have courses in common with other graduate certificates. A student may earn more than one certificate, but a given course may be counted only in one certificate.



**Warner College of Natural Resources**  
**Department of Fish/Wildlife/Conservation Biology**  
**Graduate Certificate in Conservation Actions with Lands, Animals, and People**

**Effective Fall 2017**

**Additional coursework may be required due to prerequisites.**

Select a minimum of 4 courses in consultation with advisor:		12
<u><a href="#">FW 556</a></u>	Leopold's Ethic for Wildlife and Land	
<u><a href="#">FW 557</a></u>	Wildlife Habitat Management on Private Land	
<u><a href="#">FW 576</a></u>	Wildlife Policy, Administration, and Law	
<u><a href="#">NR 501</a></u>	Leadership and Public Communications	
<u><a href="#">NR 515</a></u>	Natural Resources Policy and Biodiversity	
<u><a href="#">NR 535</a></u>	Action for Sustainable Behavior	

**Program Total Credits:** **12**

\*This certificate may have courses in common with other graduate certificates. A student may earn more than one certificate, but a given course may be counted only in one certificate.



**Major Change to Existing Program**

**College of Engineering**  
**Dual Degree Program: Biomedical Engineering and**  
**Electrical Engineering, Lasers and Optical Engineering Concentration**

**Effective Fall 2017**

Effective ~~Spring 2012~~ Fall 2017

<b>FRESHMAN</b>			<b>AUCC</b>	<b>CREDITS</b>
<u><a href="#">BIOM 101</a></u>	Introduction to Biomedical Engineering			3
<del><u><a href="#">CO 150</a></u></del>	<del>College Composition (GT-CO2)</del>		<del>1A</del>	<del>3</del>
<del>Select one group from the following:</del>			-	<del>3-4</del>
<del>Group A:</del>			-	-
<del><u><a href="#">CS 155</a></u></del>	<del>Introduction to Unix</del>		-	-
<del><u><a href="#">CS 156</a></u></del>	<del>Introduction to C Programming I</del>		-	-
<del><u><a href="#">CS 157</a></u></del>	<del>Introduction to C Programming II</del>		-	-
<del>Group B:</del>			-	-
<del><u><a href="#">CS 160</a></u></del>	<del>Foundations in Programming</del>		-	-
<u><a href="#">CHEM 111</a></u>	<u><a href="#">General Chemistry I (GT-SC2)</a></u>		<u><a href="#">3A</a></u>	<u><a href="#">4</a></u>
<u><a href="#">CHEM 112</a></u>	<u><a href="#">General Chemistry Lab I (GT-SC1)</a></u>		<u><a href="#">3A</a></u>	<u><a href="#">1</a></u>
<u><a href="#">ECE 102</a></u>	Digital Circuit Logic			4

<u>ECE 103</u>	DC Circuit Analysis		3
<u>LIFE 102</u>	<u>Attributes of Living Systems (GT-SC1)</u>	<u>3A</u>	<u>4</u>
<u>MATH 160</u>	Calculus for Physical Scientists I (GT-MA1)	1B	4
<u>MATH 161</u>	Calculus for Physical Scientists II (GT-MA1)	1B	4
<u>PH 141</u>	Physics for Scientists and Engineers I (GT-SC1)	3A	5
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b><u>32-29-30</u></b>

**SOPHOMORE**

<del>CHEM 111</del>	<del>General Chemistry I (GT-SC2)</del>	<del>3A</del>	<del>4</del>
<del>CHEM 112</del>	<del>General Chemistry Lab I (GT-SC1)</del>	<del>3A</del>	<del>4</del>
<del>CHEM 113</del>	<del>General Chemistry II</del>	<del>-</del>	<del>3</del>
<u>CO 150</u>	<u>College Composition (GT-CO2)</u>	<u>1A</u>	<u>3</u>
<u>ECE 202</u>	Circuit Theory Applications		4
<del>LIFE 102</del>	<del>Attributes of Living Systems (GT-SC1)</del>	<del>3A</del>	<del>4</del>
<u>ECE 303/STAT 303</u>	<u>Introduction to Communications Principles</u>	<u>-</u>	<u>3</u>
<u>MATH 261</u>	Calculus for Physical Scientists III		4
<del>MECH 337</del>	<del>Thermodynamics</del>	<del>-</del>	<del>4</del>
<u>PH 142</u>	Physics for Scientists and Engineers II (GT-SC1)	3A	5
<u>PH 314</u>	<u>Introduction to Modern Physics</u>	<u>-</u>	<u>4</u>

<u>Select one group from the following:</u>		<u>-</u>	<u>3-4</u>
<u>Group A:</u>		<u>-</u>	<u>-</u>
<u>CS 155</u>	<u>Introduction to Unix</u>	<u>-</u>	<u>-</u>
<u>CS 156</u>	<u>Introduction to C Programming I</u>	<u>-</u>	<u>-</u>
<u>CS 157</u>	<u>Introduction to C Programming II</u>	<u>-</u>	<u>-</u>
<u>Group B:</u>		<u>-</u>	<u>-</u>
<u>CS 163 or 164</u>	<u>Java (CS I) No Prior Programming</u> <u>Java (CS I) Prior Programming</u>	<u>-</u>	<u>-</u>
Select one <u>course</u> from the following:			4
<u>MATH 340</u>	Introduction to Ordinary Differential Equations		
<u>MATH 345</u>	Differential Equations		
Additional Requirements for Graduation <sup>1</sup>			0

**Total Credits** **30-31~~33~~**



<b>JUNIOR</b>			
<u>BIOM 300</u>	<u>Problem-Based Learning Biomedical Engr Lab</u>	-	<u>4</u>
<u>BMS 300</u>	Principles of Human Physiology		4
<del>CHEM 245</del>	<del>Fundamentals of Organic Chemistry</del>	-	<del>4</del>
<del>ECE 303/STAT 303</del>	<del>Introduction to Communications Principles</del>	-	<del>3</del>
<u>CHEM 113</u>	<u>General Chemistry II</u>	-	<u>3</u>
<u>ECE 311</u>	Linear System Analysis I		3
<u>ECE 331</u>	<u>Electronics Principles I</u>	-	<u>4</u>
<u>ECE 332</u>	<u>Electronics Principles II</u>	-	<u>4</u>
<u>ECE 341</u>	Electromagnetic Fields and Devices I		3
<u>ECE 342</u>	Electromagnetic Fields and Devices II		3
<u>LIFE 210</u>	Introductory Eukaryotic Cell Biology		3
<del>MECH 262</del>	<del>Engineering Mechanics</del>	-	<del>4</del>
<del>PH 314</del>	<del>Introduction to Modern Physics</del>	-	<del>4</del>
<del>PH 353</del>	<del>Optics and Waves</del>	-	<del>4</del>
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b><u>3135</u></b>
<b>SENIOR</b>			
<del>BIOM 300</del>	<del>Problem-Based Learning Biomedical Engr Lab</del>	-	<del>4</del>
<del>ECE 331</del>	<del>Electronics Principles I</del>	-	<del>4</del>
<del>ECE 332</del>	<del>Electronics Principles II</del>	-	<del>4</del>
<u>BIOM 431/ECE 431</u>	<u>Biomedical Signal and Image Processing</u>	-	<u>3</u>
<u>CHEM 245</u>	<u>Fundamentals of Organic Chemistry</u>	-	<u>4</u>
<u>ECE 404</u>	Experiments in Optical Electronics		2
<u>ECE 441</u>	Optical Electronics		3
<u>ECE 457</u>	Fourier Optics		3
<u>MECH 262</u>	<u>Engineering Mechanics</u>	-	<u>4</u>
<u>MECH 337</u>	<u>Thermodynamics</u>	-	<u>4</u>
<u>PH 353</u>	<u>Optics and Waves</u>	-	<u>4</u>
<u>ECON 202</u>	Principles of Microeconomics (GT-SS1)	3C	3
<u>Arts and Humanities</u>		3B	3
<del>Global and Cultural Awareness</del>		<del>3E</del>	<del>3</del>
<del>Technical Elective (see list below)</del>		-	<del>3</del>
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b><u>3332</u></b>

<b>FIFTH YEAR</b>			
<b><u>BIOM 486A</u></b>	Biomedical Design Practicum: Capstone Design I	4A,4B,4C	4
<b><u>BIOM 486B</u></b>	Biomedical Design Practicum: Capstone Design II	4A,4B,4C	4
<b><u>PH 451</u></b>	Introductory Quantum Mechanics I		3
Select one <a href="#">course</a> from the following:			3
<b><u>CO 301B</u></b>	Writing in the Disciplines: Sciences (GT-CO3)	2	
<b><u>JTC 300</u></b>	Professional and Technical Communication (GT-CO3)	2	
<b><u>Arts and Humanities</u></b>		3B	3
<b><u>Historical Perspectives</u></b>		3D	3
<b><u>Global and Cultural Awareness</u></b>		<a href="#">3E</a>	<a href="#">3</a>
<a href="#">ECE, Lasers &amp; Optics Concentration Technical Electives (See List)</a> <del>BIOM or ECE Electives</del> <sup>2</sup>			9
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b><del>32</del>29</b>
<b>Program Total Credits:</b>			<b>158-159</b>

## ECE, Lasers &amp; Optics Concentration Technical Electives List

Code	Title	Credits
<b><u>BIOM 526/ECE 526</u></b>	Biological Physics	3
<b><del>BIOM 470/MECH 470</del></b>	<del>Biomedical Engineering</del>	<del>3</del>
<b><u>BIOM 570/MECH 570</u></b>	Bioengineering	3
<b><u>ECE 411</u></b>	Control Systems	4
<b><u>ECE 412</u></b>	Digital Control and Digital Filters	3
<b><u>ECE 444</u></b>	Antennas and Radiation	3
<b><u>ECE 450</u></b>	Digital System Design Laboratory	1
<b><u>ECE 451</u></b>	Digital System Design	3
<b><u>ECE 461</u></b>	Power Systems	3
<b><u>ECE 462</u></b>	Power Systems Laboratory	1
<b><u>ECE 471A</u></b>	Semiconductor Physics	1
<b><u>ECE 471B</u></b>	Semiconductor Junctions	1
<a href="#">May select any course from the following:</a>		
<b><u>ECE 495A</u></b>	<a href="#">Independent Study</a> <sup>3</sup>	
<b><u>ECE 495B</u></b>	<a href="#">Independent Study: Open Option Project</a> <sup>3</sup>	
<b><u>ECE 495C</u></b>	<a href="#">Independent Study: Vertically Integrated Projects</a> <sup>3</sup>	
<b><u>ECE 503</u></b>	Ultrafast Optics	3
<b><u>ECE 504</u></b>	Physical Optics	3
<b><u>ECE 505</u></b>	Nanostructures: Fundamentals and Applications	3

<u>ECE 506</u>	Optical Interferometry and Laser Metrology	3
<u>ECE 507</u>	Plasma Physics and Applications	3
<u>ECE 520</u>	Optimization Methods-Control and Communication	3
<del><u>ECE 525</u></del>	<del>Fiber-Optic Communications</del>	<del>3</del>
<u>ECE 546</u>	Laser Fundamentals and Devices	3
<u>ECE 571</u>	VLSI System Design	3
<u>ECE 572</u>	Semiconductor Transistors	1
<u>ECE 573</u>	Semiconductor Optoelectronics Laboratory	3
<u>ECE 574</u>	Optical Properties in Solids	3
<u>ECE 575</u>	Experiments in VLSI System Design I	1
ECE 58* Experimental Courses in Lasers/Optics Topics		
<u>MATH 419</u>	Introduction to Complex Variables	3
<u>PH 315</u>	Modern Physics Laboratory	2
<u>PH 425</u>	Advanced Physics Laboratory	2
<u>PH 452</u>	Introductory Quantum Mechanics II	3
<u>PH 462</u>	Statistical Physics	3

- <sup>1</sup> Students are required to participate in the Professional Learning Institute (PLI) program as a requirement for graduation. The program consists of eleven PLI workshops distributed by focus areas as follows: Global and Cultural Diversity (2 workshops), Innovation (2 workshops), Leadership (2 workshops), Civic and Public Engagement (2 workshops), and Ethics (3 workshops). Each workshop is between 1-2 hours long and no outside preparation is required to attend any of the workshops. Attendance at the required workshops may be spread over the student's five-year program.
- <sup>2</sup> Select 9 credits from courses from the Electrical Engineering, Lasers and Optics Concentration, Technical Elective list ~~with the BIOM or ECE subject code.~~
- <sup>3</sup> A total of 3 credits of Independent Study may apply toward degree requirements. This includes credit awarded for ECE 495A, ECE 495B, ECE 495C combined.



**Updates and Corrections to Previous UCC Minutes**

1. The Major in Human Development and Family Studies, Prevention and Intervention Sciences Concentration was approved with changes to the concentration on the UCC 10/21/16 Consent Agenda. The **course number for PSY 228 has been changed to PSY 328** effective Fall 2017 and approved by UCC 10/28/16.
2. The **Dual Degree Program: Biomedical Engineering and Chemical & Biological Engineering** was approved by the UCC on 2/5/16 with major changes to the course Effective Fall 2016. The following courses were listed incorrectly in the Program of Study. The corrections are listed below.

Course/Requirement	2/5/16 POS placement	Correct POS placement
CO 150	Sophomore year	Freshman year
LIFE 102	Freshman year	Sophomore year
Advanced Writing (AUCC 2)	Fifth year	Junior year
Social & Behavioral Sciences (AUCC 3C)	Junior year	Fifth year

FRESHMAN		
		AUCC CREDITS
<b><u>BIOM 101</u></b>	Introduction to Biomedical Engineering	3
<b><u>CBE 101</u></b>	Chemical and Biological Engineering I	3
<b><u>CBE 160</u></b>	MATLAB for Chemical and Biological Eng	1
<b><u>CHEM 111</u></b>	General Chemistry I (GT-SC2)	3A 4
<b><u>CHEM 112</u></b>	General Chemistry Lab I (GT-SC1)	3A 1
<b><u>CHEM 113</u></b>	General Chemistry II	3
<b><u>CO 150</u></b>	<u>College Composition (GT-CO2)</u>	<u>1A 3</u>
<b><u>LIFE 102</u></b>	<u>Attributes of Living Systems (GT-SC1)</u>	<u>3A 4</u>
<b><u>MATH 160</u></b>	Calculus for Physical Scientists I (GT-MA1)	1B 4
<b><u>MATH 161</u></b>	Calculus for Physical Scientists II (GT-MA1)	1B 4
<b><u>PH 141</u></b>	Physics for Scientists and Engineers I (GT-SC1)	3A 5
Additional Requirements for Graduation <sup>1</sup>		0
<b>Total Credits</b>		<b>31</b>
SOPHOMORE		
<b><u>CBE 201</u></b>	Material and Energy Balances	3
<b><u>CBE 205</u></b>	Introduction to Biological Engineering	3
<b><u>CBE 210</u></b>	Thermodynamic Process Analysis	3
<b><u>CHEM 114</u></b>	General Chemistry Lab II	1
<b><u>CHEM 341</u></b>	Modern Organic Chemistry I	3
<b><u>CHEM 343</u></b>	Modern Organic Chemistry II	3
<b><u>CHEM 344</u></b>	Modern Organic Chemistry Laboratory	2

<del>CO 150</del>	<del>College Composition (GT-CO2)</del>	<del>1A</del>	<del>3</del>
<u>LIFE 102</u>	<u>Attributes of Living Systems (GT-SC1)</u>	<u>3A</u>	<u>4</u>
<u>MATH 261</u>	Calculus for Physical Scientists III		4
<u>MATH 340</u>	Introduction to Ordinary Differential Equations		4
<u>PH 142</u>	Physics for Scientists and Engineers II (GT-SC1)	3A	5
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b>35</b>
<b>JUNIOR</b>			
<u>BC 351</u>	Principles of Biochemistry		4
<u>BIOM 300</u>	Problem-Based Learning Biomedical Engr Lab		4
<u>BMS 300</u>	Principles of Human Physiology		4
<u>CBE 310</u>	Molecular Concepts and Applications		3
<u>CBE 320</u>	Chemical and Biological Reactor Design		3
<u>CBE 330</u>	Process Simulation		3
<u>CBE 331</u>	Momentum Transfer and Mechanical Separations		3
<u>CBE 332</u>	Heat and Mass Transfer Fundamentals		3
<u>CBE 493</u>	Professional Development Seminar		1
<u>LIFE 210</u>	Introductory Eukaryotic Cell Biology		3
<u>Advanced Writing</u>		<u>2</u>	<u>3</u>
<del>Social and Behavioral Sciences</del>		<del>3C</del>	<del>3</del>
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b>34</b>
<b>SENIOR</b>			
<u>BIOM 421</u>	Transport Phenomena in Biomedical Engineering		3
<u>BIOM 422</u>	Kinetics of Biomolecular and Cellular Systems		3
<u>CBE 333</u>	Chemical and Biological Engineering Lab I		2
<u>CBE 442</u>	Separation Processes		4
<u>CBE 443</u>	Chemical and Biological Engineering Lab II		2
<u>CBE 451</u>	Chemical and Biological Engineering Design I		3
<u>MECH 262</u>	Engineering Mechanics		4
<u>STAT 315</u>	Statistics for Engineers and Scientists		3
<u>Arts and Humanities</u>		3B	3
<u>Historical Perspectives</u>		3D	3
Additional Requirements for Graduation <sup>1</sup>			0
<b>Total Credits</b>			<b>30</b>

<b>FIFTH YEAR</b>			
<u>BIOM 486A</u>	Biomedical Design Practicum: Capstone Design I	4A,4B,4C	4
<u>BIOM 486B</u>	Biomedical Design Practicum: Capstone Design II	4A,4B,4C	4
<u>CBE 430</u>	Process Control and Instrumentation		3
<del>Advanced Writing</del>		<del>2</del>	<del>3</del>
<u>Arts and Humanities</u>		3B	3
<u>Global and Cultural Awareness</u>		3E	3
<u>Social and Behavioral Sciences</u>		<u>3C</u>	<u>3</u>
BME Technical Elective <sup>2</sup>			3
CBE Technical Elective <sup>3</sup>			5
Additional Requirements for Graduation <sup>1</sup>			0
		<b>Total Credits</b>	<b>28</b>
<b>Program Total Credits:</b>			<b>158</b>



The meeting adjourned at 5:05 p.m.

Carole Makela, Chair  
 Kayleen Allen, Curriculum & Catalog Assistant  
 Shelly Ellerby, Curriculum Liaison Specialist



University Curriculum Committee  
 January 20, 2017  
**CONSENT AGENDA**

**Experimental Courses – 1<sup>st</sup> Offering**

	Course Title	Effective Term
<a href="#">MECH 581A7</a>	Thermal Energy Systems Design and Analysis	Fall 2017

**Minor Changes to Courses**

	Course Title	Requested Change	Effective Term
<a href="#">ACT 211</a>	Accounting Professional Skills	<b>Prerequisite Courses:</b> <a href="#">ACT 205</a> or ACT 210	Fall 2017
<a href="#">ACT 220</a>	Introduction to Managerial Accounting	<b>Prerequisite Courses:</b> (ACT 205 or ACT 210) <del>and (BUS 150, may be taken concurrently or CS 110, may be taken concurrently)</del>	Fall 2017
<a href="#">ACT 311</a>	Intermediate Accounting I	<b>Prerequisite Courses:</b> (ACT 205 with a minimum grade of B- or ACT 210 with a minimum grade of B-) and (ACT 220 with a minimum grade of B-) and <a href="#">CIS 200</a> and (ACT 211, may be taken concurrently).	Fall 2017
<a href="#">ECE 442</a>	Numerical Algorithms for VLSI Modeling	<b>Offering Term:</b> <del>F, S</del>  <b>Prerequisite Courses:</b> ECE 312 with a minimum grade of C; <del>and</del> ECE 332 with a minimum grade of C; <del>and</del> ECE 342 with a minimum grade of C	Fall 2017
<a href="#">ECE 466</a>	Integrated Lighting Systems	<b>Offering Term:</b> <del>F, S</del>	Fall 2017
<a href="#">ECE 548</a>	Microwave Theory and Component Design	<b>Offering Year:</b> <del>Every</del> <a href="#">Odd</a>  <b>Offering Term:</b> <del>F, S</del>	Fall 2017
<a href="#">ECE 569/MECH 569</a>	Micro-Electro-Mechanical Devices	<b>Offering Year:</b> <del>Even</del> <a href="#">Every</a>	Fall 2017
<a href="#">FIN 300</a>	Principles of Finance	<b>Prerequisite Courses:</b> (ACT 205 or ACT 210) and (AREC 202 or ECON 202) <del>and (CIS 200)</del> and (ECON 204) and (MATH 141 or MATH 155 or MATH 160)	Fall 2017
<a href="#">LCHI 496</a>	Group Study-Chinese	<b>Prerequisite Courses:</b> LCHI <a href="#">304</a> or <del>LCHI 305 335</del>	Fall 2017
<a href="#">MKT 487</a>	Internship	<b>Prerequisite Courses:</b> <a href="#">MKT 300</a> . <del>None.</del>	Fall 2017
<a href="#">MU 443</a>	Music Therapy Methods II	<b>Offering Term:</b> <del>F, S</del>  <b>Prerequisite Courses:</b> <a href="#">MU 241</a> . <del>None.</del>	Fall 2017

[PSY 437](#) Psychology of Gender Prerequisite Courses: PSY [100](#) Summer 2017  
~~210.~~

**Course Drops**

	Course Title	Requested Change	Effective Term
<a href="#">ECE 422</a>	Telecommunications II	Drop	Summer 2017
<a href="#">ECE 454</a>	Database Computers	Drop	Fall 2017
<a href="#">ECE 472</a>	MOS Integrated Circuits	Drop	Fall 2017
<a href="#">ECE 525</a>	Fiber Optic Communications	Drop	Fall 2017
<a href="#">ECE 550A</a>	Microprocessors Based Systems	Drop	Spring 2017
<a href="#">ECE 550B</a>	Microprocessors Based Systems	Drop	Spring 2017
<a href="#">ECE 557</a>	Digital Optical Computing	Drop	Spring 2017
<a href="#">ECE 563</a>	Power Electronics II	Drop	Spring 2017
<a href="#">ECE 564</a>	Resonant Converters	Drop	Spring 2017
<a href="#">ECE 568/ENGR 568</a>	Electrical Energy Generation Systems	Drop	Fall 2017
<a href="#">ECE 576</a>	VLSI Processing-Science and Technology	Drop	Fall 2017
<a href="#">ECE 655</a>	Multidimensional Digital Signal Processing	Drop	Spring 2017
<a href="#">ECE 660</a>	Advanced Topics in VLSI Design	Drop	Fall 2017
<a href="#">ECE 672/PH 672</a>	Principles of Semiconductors	Drop	Spring 2017
<a href="#">ECE 721</a>	Topics in Communication Theory	Drop	Spring 2017
<a href="#">ECE 744</a>	Topics in Plasma Dynamics	Drop	Fall 2017



**Minor Change to Existing Programs**

College of Agricultural Sciences  
 Department of Animal Sciences  
 Major in Animal Science

**Effective Fall 2017**

Effective Fall 2017 ~~2016~~

**Specialization Animal Science List**

Code	Title	Credits
<a href="#">ANEQ 334</a>	Principles of Equine Genetics	3
<a href="#">ANEQ 345</a>	Principles of Nutrition: Equine Applications	3
May select one advanced judging evaluation course:		
<a href="#">ANEQ 355</a>	Advanced Livestock Evaluation	
<a href="#">ANEQ 357</a>	Advanced Dairy Evaluation	



## University Curriculum Committee Minutes

January 20, 2017

Page 17

Code	Title	Credits
<a href="#"><u>ANEQ 362</u></a>	Advanced Meat Product Evaluation	
<a href="#"><u>ANEQ 364</u></a>	Advanced Wool and Fiber Evaluation	
<a href="#"><u>ANEQ 420</u></a>	Applied Nutrition--Computer Diet Formulation	3
<a href="#"><u>ANEQ 450</u></a>	Processed Meats	3
<a href="#"><u>ANEQ 460</u></a>	Meat Safety	2
<a href="#"><u>ANEQ 470</u></a>	Meat Processing Systems	4
<a href="#"><u>ANEQ 472</u></a>	Sheep Systems	3
<a href="#"><u>ANEQ 473</u></a>	Dairy Systems	3
<a href="#"><u>ANEQ 474</u></a>	Swine Systems	3
<a href="#"><u>ANEQ 476</u></a>	Feedlot Systems	3
<a href="#"><u>ANEQ 478</u></a>	Beef Systems	3
<a href="#"><u>ANEQ 487A</u></a>	Internship: Animal	Var.
<a href="#"><u>ANEQ 495</u></a>	Independent Study	Var.
<a href="#"><u>ANEQ 496</u></a>	Group Study	Var.
<a href="#"><u>ANEQ 510</u></a>	Bovine Reproduction Management	4
<a href="#"><u>ANEQ 522</u></a>	Animal Metabolism	3
<a href="#"><u>ANEQ 531</u></a>	<a href="#"><u>Applied Bovine Respiratory Disease Management</u></a>	<u>1</u>
<a href="#"><u>ANEQ 532</u></a>	<a href="#"><u>Genetics of Bovine Respiratory Disease</u></a>	<u>1</u>
<a href="#"><u>ANEQ 534</u></a>	<a href="#"><u>Markers to Gene Function - Functional Change</u></a>	<u>1</u>
<a href="#"><u>ANEQ 551</u></a>	Field Necropsy	2
<a href="#"><u>ANEQ 565</u></a>	Interpreting Animal Science Research	3
<a href="#"><u>ANEQ 567</u></a>	HACCP Meat Safety	2
<a href="#"><u>ANEQ 575</u></a>	Computational Biology in Animal Breeding	3
<a href="#"><u>BC 463</u></a>	Molecular Genetics	3
<a href="#"><u>BC 465</u></a>	Molecular Regulation of Cell Function	3
<a href="#"><u>BMS 305</u></a>	Domestic Animal Gross Anatomy	4
<a href="#"><u>BMS 409</u></a>	Human and Animal Reproductive Biology	3
<a href="#"><u>BMS 430</u></a>	Endocrinology	3
<a href="#"><u>BMS 450</u></a>	Pharmacology	3
<a href="#"><u>BSPM 462/BZ 462/MIP 462</u></a>	Parasitology and Vector Biology	5
<a href="#"><u>MIP 334</u></a>	Food Microbiology	3
<a href="#"><u>MIP 335</u></a>	Food Microbiology Laboratory	2
<a href="#"><u>MIP 342</u></a>	Immunology	4
<a href="#"><u>MIP 343</u></a>	Immunology Laboratory	2
<a href="#"><u>MIP 432</u></a>	Microbial Ecology	3
<a href="#"><u>MIP 433</u></a>	Microbial Ecology Laboratory	1

Code	Title	Credits
<a href="#"><u>MIP 436</u></a>	Industrial Microbiology	4
<a href="#"><u>MIP 443</u></a>	Microbial Physiology	4
<a href="#"><u>MIP 450</u></a>	Microbial Genetics	3
<a href="#"><u>RS 400</u></a>	Rangeland Improvements	2
<a href="#"><u>RS 471</u></a>	Rangeland Planning and Grazing Management	2
<a href="#"><u>RS 472</u></a>	Rangeland Ecosystem Planning	4
<a href="#"><u>VS 331</u></a>	Histology	4

### Applied Animal Science List (Select a minimum of 4 credits from a minimum of 2 courses)

Code	Title	Credits
<a href="#"><u>ANEQ 286</u></a>	<a href="#"><u>Livestock Practicum</u></a>	<u>2</u>
<a href="#"><u>ANEQ 300A</u></a>	Topics in Animal Sciences: Livestock Handling	1
<a href="#"><u>ANEQ 300B</u></a>	Topics in Animal Sciences: Livestock Entomology	1
<a href="#"><u>ANEQ 300E</u></a>	Topics in Animal Sciences: Family Ranching	1
<a href="#"><u>ANEQ 300L</u></a>	Topics in Animal Sciences: Quality Assurance	2
<a href="#"><u>ANEQ 300N</u></a>	Topics in Animal Sciences: Seedstock Merchandising	2
<a href="#"><u>ANEQ 300R</u></a>	Topics in Animal Sciences: Calving and Calf Care	2
<a href="#"><u>ANEQ 300U</u></a>	Topics in Animal Sciences: Seedstock Sale Management	2
<a href="#"><u>ANEQ 312</u></a>	Animal Ultrasonography	2
<a href="#"><u>ANEQ 322</u></a>	Pet Nutrition	2
<a href="#"><u>ANEQ 323</u></a>	Zoo Nutrition	2
<a href="#"><u>ANEQ 352</u></a>	Introduction to Horse Evaluation	2
<a href="#"><u>ANEQ 354</u></a>	Introduction to Livestock Evaluation	3
<a href="#"><u>ANEQ 356</u></a>	Introduction to Dairy Evaluation	3
<a href="#"><u>ANEQ 361</u></a>	Introduction to Meat Product Evaluation	3
<a href="#"><u>ANEQ 363</u></a>	Introduction to Wool and Fiber Evaluation	1
<a href="#"><u>ANEQ 384</u></a>	Supervised College Teaching	1-5
<b>Applied Equine Sciences Course</b> (A maximum of one course, 1-3 credits, may be selected from the following courses):		1-3
<a href="#"><u>ANEQ 201A</u></a>	Preparation of Horses for Competition: Western	
<a href="#"><u>ANEQ 201B</u></a>	Preparation of Horses for Competition: English	
<a href="#"><u>ANEQ 202</u></a>	Safety in Horse Handling	
<a href="#"><u>ANEQ 203</u></a>	Equine Management	
<a href="#"><u>ANEQ 204</u></a>	Equine Facilities Management	
<a href="#"><u>ANEQ 249</u></a>	Introduction to the Trail Riding Industry	
<a href="#"><u>ANEQ 315</u></a>	Equine Behavior	
<a href="#"><u>ANEQ 325</u></a>	Equine Exercise Physiology	

Code	Title	Credits
<a href="#"><u>ANEQ 340</u></a>	Horse Training and Sale Preparation I	
<a href="#"><u>ANEQ 341</u></a>	Horse Training and Sale Preparation II	
<a href="#"><u>ANEQ 349</u></a>	Packing and Outfitting	
<a href="#"><u>ANEQ 351</u></a>	Techniques in Therapeutic Riding	
<a href="#"><u>ANEQ 353</u></a>	Advanced Horse Evaluation	
<a href="#"><u>ANEQ 358</u></a>	Equine Event and Sales Management	
<a href="#"><u>ANEQ 359</u></a>	Equine Sales Production	
<a href="#"><u>ANEQ 365</u></a>	Principles of Teaching Therapeutic Riding	
<a href="#"><u>ANEQ 386B</u></a>	Equine Practicum: Equine Reproductive Management	
<a href="#"><u>ANEQ 386C</u></a>	Equine Practicum: Equine Farrier Management	
<a href="#"><u>ANEQ 442</u></a>	Riding Instructor Training	
<a href="#"><u>ANEQ 445</u></a>	Foaling Management	
<a href="#"><u>ANEQ 486</u></a>	Therapeutic Riding Instructor Practicum	
L*** 2** 200-Level Foreign Language		



***For Informational Purposes:***

[NR 565](#), [NR 566](#), [NR 568](#), and [NR 678](#) and have requested a Department/Unit change for each course.

Original Department/Unit (for all courses):

1401 – Warner College of Natural Resources

Department/Unit changing to (for all courses):

[1472 – Forest & Rangeland Stewardship](#)

