UNIVERSITY CURRICULUM COMMITTEE AGENDA
2:00 p.m., Friday, November 11, 2016
106 Administration, Provost Conference Room

Note: If you are unable to attend or will be sending a substitute, please notify Carole Makela (1-5141) or Curriculum_Catalog@colostate.edu (1-2429) prior to the meeting.

MINUTES – Minutes of November 4, 2016

ANNOUNCEMENTS

1. Overview of pending revisions to simplify and improve the CIM course proposal form.

CONSENT AGENDA

See listing after New Business.

CIM Considerations

CIM Forms
CIM Processes
CIM Help Bubble

PENDING CoSRGE

New Program Proposals:

- Ph.D. in Anthropology
- Graduate Certificate in Adventure Tourism
- Graduate Certificate in Nutrition for Health Promotion

OTHER BUSINESS

1. **Discussion Item: UCC Committee Responsibilities and Operating Procedures**
   UCC Committee Responsibilities – Faculty Manual Section C:
   k. University Curriculum Committee (last revised June 22, 2006)

   The University Curriculum Committee shall consist of one (1) faculty representative from each college and the Libraries, one (1) undergraduate student, one (1) graduate student, and the Provost or his or her designee (ex officio). The duties of this standing committee shall be:
   1. To receive or initiate recommendations pertaining to each and every course and program offered for academic credit by any unit of the University.
   2. To evaluate all proposals for new undergraduate courses and programs as well as changes in existing courses and programs for correlation with other departments before consideration and approval by the Faculty Council.
   3. To evaluate all proposals for new graduate courses and programs as well as changes in existing courses and programs for correlation with other departments. Review of graduate programs is conducted after the Committee on Scholarship, Research, and Graduate Education has recommended approval prior to their submission to the Faculty Council for approval.
   4. To develop necessary administrative procedures for informing interested colleges concerning courses under consideration.
   5. To evaluate proposals for the establishment of new departments, and the change of academic name, change in college affiliation, dissolution, division, or merger of existing departments.
   6. To recommend policies to the Faculty Council related to the operations of the Division of Continuing Education which impact curricula.

   UCC Operating Procedures – See document after the Consent Agenda

OLD BUSINESS

New Courses

Effective Term

Liberal Arts

ART 327 — **ART 327 Issues in Art Education and the Public 3(3-0-0) SS** — Summer 2017

Prerequisite: None.
Registration Information: This is a partial semester course. Junior standing. Offered as an online course only.
Description: Introduce students to the concepts relating to Art Education in contemporary society.
Grade Mode: Traditional.

Reason for Request: There is a need for a flexible upper division art elective course offered in the summer for students unable to complete all requirements during the regular school year. The online course offers the most flexibility and makes this option available to students not staying in Colorado over the summer. The content is desirable to give students a broad view of art in the context of community education. The course also offers a flexible and relevant course option for public school teachers seeking re-licensure credits.

Major Changes to Courses

Effective Term

College of Veterinary Medicine and Biomedical Sciences

VM 745 — **VM 745 Clinical Sciences I 5(5-0-0) S** — Spring 2017

Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Admission to ~~professional curriculum in veterinary medicine~~ the Doctorate of Veterinary Medicine Program. All courses must be taken in prescribed sequence in the ~~PVM~~ DVM program. This is a partial semester course.
Description: Diagnostic approaches to common medical problems of the gastrointestinal tract (including dentistry), liver / pancreas, ~~cardiovascular, urinary,~~ and endocrine systems in small animal, food animal, and equine species are covered. ~~digestive hepatic systems.~~ A clinical reasoning process for approaching clinical problems is reviewed and reinforced.
Grade Mode: Traditional.

Reason for Request: Current description of the body systems the course covers is incorrect.

New Graduate Certificates

Warner College of Natural Resources — **Effective Fall 2017**
Department of Fish/Wildlife/Conservation Biology
Graduate Certificate in Conservation Actions with Lands, Animals, and People — Link to CIM

Reason for Request: All courses in the Certificate have been approved at the 500 level for Online delivery through the curriculum review process at CSU and all content has been taught over time. The goal is to facilitate opportunities for persons who have baccalaureate degrees to fill gaps in timing, content, and outcomes of education. Types of audiences include persons who may eventually seek graduate degrees, established professionals in natural resources fields needing relevant continuing education, educated persons seeking career changes, and for persons outside of natural resources who desire and will benefit from courses that help with holistic understanding and actions toward their role in society and with land, animals, and people. A certificate helps to provide a thoughtfully managed and integrated link to education beyond the random selection of courses.

Additional coursework may be required due to prerequisites.

Code	Title	Credits
Select a minimum of 3 courses:		9
FW 556	Leopold's Ethic for Wildlife and Land	
FW 557	Wildlife Habitat Management on Private Land	
FW 576	Wildlife Policy, Administration, and Law	
NR 501	Leadership and Public Communications	
NR 515	Natural Resources Policy and Biodiversity	
NR 535	Action for Sustainable Behavior	
Program Total Credits		**9**

*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.

NEW BUSINESS

New Courses **Effective Term**

College of Liberal Arts

ART 521 **ART 521 Art and Environment – Advanced Study 3(3-0-0) F, S, SS** Fall 2017

Prerequisite: None.
Registration Information: Graduate standing in the Art and Art History Department. Required field trips.
Description: Interdisciplinary studio/seminar course investigating art's relationship to the environment through readings, field trips, presentations and studio practice.
Grade Mode: Traditional.
Offering Term: As Needed.

Reason for Request: This course has been taught as an experimental course twice and enrollment numbers indicate that there is interest in making the course permanent. The course fills a gap in offerings by blending seminar-type discussion of issues with studio practice in an interdisciplinary studio setting.

MU 592A **MU 592A Seminar: Music Theory Var[1-3] F, S, SS** Fall 2017

Prerequisite: None.
Registration Information: Graduate standing.
Description: Special Topics in Music Theory.
Grade Mode: Traditional.
Offering Term: As Needed.

Reason for Request: We are expanding music theory offerings for our graduate students, especially our performance majors who have available elective credit hours. This course allows our students to explore narrower theoretical topics with more depth. Selected, rotating topics to be determined by faculty availability and expertise, and student interest.

MU 592E **MU 592E Seminar: Music History Var[1-3] F, S, SS** Fall 2017

Prerequisite: MU 334; MU 335.
Registration Information: May be repeated up to three times for credit.
Description: Special Topics in Music History.
Grade Mode: Traditional.
Offering Term: As Needed.

Reason for Request: We are expanding our music history offerings for graduate students, especially performance majors who have available elective credit hours. This course allows students to explore narrower historical topics with more depth. Selected, rotating topics to be determined by faculty availability and expertise, and student interest.

College of Natural Sciences

PSY 677 — **PSY 677 Psychology of Women, Men, and Gender 3(0-0-3) F, S, SS** — Fall 2017

Prerequisite: None.
Registration Information: None.
Description: Focuses on the psychology of women, men and gender, by intersectionalities, and in cultural, transnational context. Topics include gendered life paths; gender and the media; gender and relationships; gender and health, gender and work; and gender and globalization.
Grade Mode: Traditional.
Offering Term: Fall.

Reason for Request: The course is relevant to the Psychology graduate programs as well as the Ethnic Studies proposed graduate certificate on gender and power. To appear with its own title (and for example, to be listed in the Ethnic Studies certificate) it needs its own number, hence this request.

Major Changes to Courses — **Effective Term**

College of Liberal Arts

ETST 253 — **ETST 253 Chicanx ~~Chicana/o~~ History and Culture 3(3-0-0) F** — Fall 2017

Prerequisite: None.
Registration Information: None.
Description: Historical study of Chicanx ~~Chicana/o/Mexicana/o~~ and Mexican people and culture from Spanish colonization to beginning of 20th century
Grade Mode: Traditional
Offering Year: ~~Odd.~~ Every.
[Existing AUCC 3E Global & Cultural Awareness course]

Reason for Request: The binary term "Chicana/o" is being changed to the non-gender-specific "Chicanx" to reflect current usage in the discipline.

ETST 432 — **ETST 432 Latinx ~~Latina/o~~ Routes to Empowerment 3(3-0-0) S** — Fall 2017

Prerequisite: (ETST 100) or (ETST 101-499 at least 6 credits). ~~None.~~
Registration Information: Sophomore standing.
Description: Critical examination of political and economic strategies used to incorporate Chicanx/Latinx ~~Chicana/o/Latina/o~~ groups into U.S. society.
Grade Mode: Traditional

Reason for Request: The binary term "Latina/o" is being changed to the non-gender-specific "Latinx" to reflect current usage in the discipline.

Warner College of Natural Resources

GEOL 150 — **GEOL 150 Physical Geology for Scientists and Engineers 4(3-3-0) F** — Fall 2017

Prerequisite: None.
Registration Information: Must register for lecture and laboratory. Required field trips. Credit allowed for only one of the following: GEOL 120, GEOL 122, GEOL 124, GEOL 150. Credit not allowed for both GEOL 150 and GEOL 121.
Description: Earth materials, structures, and surface processes. Geologic analysis using field data, topographic and geologic maps, and aerial photos.
Grade Mode: Traditional
[AUCC 3A proposal for Biological/Physical Sciences]

Reason for Request: We are seeking to add the AUCC 3A designation on the Geol 150: Physical Geology for Scientists and Engineers Course. This course is a required introductory geology course in the Geology major. This course includes a lecture and lab component and fully meets the criteria to be eligible for AUCC 3A approval. We are requesting this change to ensure that students who complete this course have the ability to use it to fulfill their AUCC 3A: Biological/Physical Science requirement. This course is considered an equivalent course to Geol 120 and Geol 122, two courses that both have the AUCC 3A designation.

College of Natural Sciences

MATH 141 **MATH 141 Calculus in Management Sciences 3(3-0-0) F, S, SS** Fall 2017

Prerequisite: MATH 118.
Registration Information: Sections may be offered: Online. Credit allowed for only one of the following courses: MATH 141, MATH 155 or MATH 160
Description: Analytic geometry, limits, equilibrium of supply and demand, differentiation, integration, applications of the derivative, integral.
Grade Mode: Traditional.
[AUCC 1B: Mathematics]

Reason for Request: Adding Distance/Online instructional format in response to demand through CSU Online, no changes to course content, assessment, or registration information.

MATH 501 **MATH 501 Combinatorics I 3(3-0-0) F, S, SS** Fall 2017

Prerequisite: (MATH 301) and (MATH 360 or MATH 366).
Registration Information: Sections may be offered: Online.
Description: Puzzles, numbers and counting, subsets, recurrence relations, generating functions, inversion, counting with symmetry, networks, matchings.
Grade Mode: Student Option.

Reason for Request: Adding online/distance instructional format to support offering the Masters in Mathematics through CSU Online. No changes to course content or face-to-face pedagogy.

PSY 192 **PSY 192 Psychology First-Year Seminar 1(0-0-1) F, S** Fall 2017

Prerequisite: None.
Registration Information: Sections may be offered: Online.
Description: Introduction to and discussion of topics in the major branches of psychology. ~~Special topics in psychology.~~
Grade Mode: Traditional~~S/U Sat/Unsat Only~~

Reason for Request: With S/U grading, grades do not sufficiently differentiate the level of effort and performance of students. S/U grading also hinders motivation--instructors indicate that many students put in the minimal effort needed to attain an S.

New Graduate Certificate

College of Health and Human Sciences **Effective Fall 2017**
Department of School of Education
Graduate Certificate in High Impact On-Demand Solutions Link to CIM

Reason for Request: This On-Demand Learning certificate prepares instructional designers with understanding of learning systems, learning theories, and instructional design models that support content creation that is integrated into the larger on-demand learning ecosystem. Additionally, students are exposed to state-of-the-art solutions and tools for developing on-demand learning content.

Currently, our curriculum does not include a certificate program that engages students in research- theory based approaches to aligning performance opportunities, justification, and digital-learning objectives to plan the develop of on-demand learning content. In this certificate program, we teach instructional designers how to theorize about learning within systems, how to go beyond face-to-face training, to develop and maintain ecosystems that leverage on-demand learning content.

Additional coursework may be required due to prerequisites.

Code	Title	Credits
EDOD 651	On-Demand Learning–Improving Performance	3
EDOD 652	High Impact On-Demand Solutions	3
EDOD 653	Managing Development of On-Demand Solutions	3
Program Total Credits		**9**

Course List

*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.

New Degree Programs

College of Natural Sciences **Effective Fall 2017**
Department of Psychology
Master of Addiction Counseling, Plan C (M.A.C.) Link to CIM

Reason for Request: CSU's Department of Psychology focuses on graduate degrees across a number of specialty areas, including Counseling Psychology, which is integral to the identity and mission of the department. The department currently offers a Ph.D. in Counseling Psychology. The Counseling Program is annually recognized as one of the top programs in the country. Students enrolled in the Doctoral Program receive a Master's degree in pursuit of their Doctorate, but the program is designed to teach skills and knowledge across four to five years of academic study. Additionally, the Ph.D. in Counseling Psychology follows the Scientist-Practitioner model, providing primary education and training in becoming a research scientist seeking a career in academia. Thus, while many potential applicants desire a terminal Master's degree from CSU, they would not be accepted into the Doctoral Program if their stated goal was a Master's degree, nor would they be adequately prepared for a career in Addiction Counseling with a Master's degree earned as a requirement towards the doctorate focused on training scientist-practitioners destined for a career in academia.

Effective Fall 2017

First Year

Fall		Total Credits
PSY 612	Introduction to Addiction Counseling	3
PSY 675	Ethics and Professional Psychology Practice	3
PSY 724	Motivational Interviewing	3
PSY 726	Neuropharmacology of Addiction	3
	Total Credits	**12**
Spring		
PSY 613	Advanced Addiction Counseling	3
PSY 720	Psychopathology	3
PSY 776	Business and Practice of Addiction Counseling	3
PSY 793	Clinical Supervision of Addiction Counseling	3
	Total Credits	**12**

Second Year		
Fall		
PSY 786E	Advanced Practicum: Clinical	9
	Total Credits	**9**
Spring		
PSY 786E	Advanced Practicum: Clinical	9
	Total Credits	**9**
	Program Total Credits:	**42**

A minimum of 42 credits are required to complete this program.

Warner College of Natural Resources **Effective Fall 2017**
Department of Ecosystem Science & Sustainability
Master of Science in Ecosystem Sustainability, Plan A Link to CIM

Reason for Request: A broad spectrum of ecological and social factors interact to shape the future of our ecosystems and societies. Many units at CSU focus on pieces of these complex systems, and cross-campus strengths are the hallmark of some of our programs. The new degree program we propose will enable students to develop core competencies in ecosystem science – the study of interactions between organisms and the environment - and apply that knowledge to address real-world issues. A broad graduate education with a strong focus on ecosystem science will provide graduates with the ability to understand and deal with the complex scientific issues in sustainability. Together with interdisciplinary education in sustainability science, this unique educational path will serve as a foundation for a wide range of careers including academic and scholarly professions, as experts in government and non-government conservation organizations.

The degree will include core study in biophysical/ecosystem science and applications to global change and sustainability issues. Maintaining ecosystem services in the face of global challenges such as climate change, population growth, globalization, land use intensification, and invasive species requires core competency in ecosystem science coupled with the ability to effectively communicate and work with experts from a variety of separate disciplines. Our program will provide students with the training to develop and implement solutions to global problems related to water resources, food supplies, energy, greenhouse gas management, land use change, and climate change.

Code	Title	Credits
Required Core Courses - (4 credits)		
ESS 501	Principles of Ecosystem Sustainability	3
ESS 692	Seminar	1

Required Areas of Specialization – (up to 20 credits, 9 of which come from ESS courses)
In consultation with their thesis advisor, students will select graduate level courses (500-700 level) totaling up to 20 credits across four areas: ecosystem science, ecosystem sustainability, quantitative methods, and collaboration/communication. Students are required to earn 9 credit hours from courses with ESS prefix in the areas as indicated below.

Ecosystem Science (at least 1 course with an ESS prefix)		
ATS 753	Global Hydrologic Cycle	3
ATS 760	Global Carbon Cycle	2
ATS 762	Biosphere-Chemistry-Climate Interactions	2
BZ 572	Phytoremediation	3
BZ 642	Plant Metabolism	3
ECOL 505	Foundations of Ecology	3
ECOL 600	Community Ecology	3
ECOL 610	Ecosystem Ecology	3
ECOL 620	Applications in Landscape Ecology	4
ESS 524	Foundations for Carbon/Greenhouse Gas Mgmt	3
ESS 543	Current Topics in Climate Change	2
ESS 660	Biogeochemical Cycling in Ecosystems	3
F 510	Ecophysiology of Trees	3
F 624	Fire Ecology	3
ESS 625/F 625	Ecology of Forest Production	3
FW 555	Conservation Biology	3
HORT 571	Soil-Plant-Water Relations/Water Stress	3
HORT 675	Plant Stress Physiology	3
RS 531	World Grassland Ecogeography	3
RS 651	Primary Production and Decomposition	4
SOCR 522	Micrometeorology	3
SOCR 540	Soil-Plant-Nutrient Relationships	3
WR 520	Evapotranspiration	2
WR 574	Advanced Snow Hydrology	4
WR 616	Hillslope Hydrology and Runoff Processes	3

Ecosystem Sustainability (at least 1 course with an ESS prefix)		
AGRI 500	Advanced Issues in Agriculture	3
AGRI 521	Emerging Issues and Challenges for Global Agr	3
AGRI 562/SOC 562	Sociology of Food Systems and Agriculture	3
AGRI 570	Issues in Animal Agriculture	2
AGRI 601/ENGR 601	Bioenergy Technology	3
AGRI 602	Bioenergy Policy, Economics, and Assessment	3
AGRI 632	Managing for Ecosystem Sustainability	3
AGRI 635	Integrated Forage Management	3
AGRI 637	Understanding Policy and Emerging Issues	3

AGRI 638	Ecosystem Services on Agricultural Lands	3
ANTH 529	Anthropology and Sustainable Development	3
ANTH 530	Human-Environment Interactions	3
ANTH 535	Globalization and Culture Change	3
ANEQ 548	Issues in Manure Management	4
AREC 542	Applied Advanced Water Resource Economics	3
AREC 566/SOC 566	Contemporary Issues in Developing Countries	3
AREC 660	Development of Rural Resource-Based Economies	3
ECOL 592	Interdisciplinary Seminar in Ecology	1-3
ESS 542	Greenhouse Gas Policies	2
GES 520	Issues in Global Environmental Sustainability	3
IE 517/PSY 517	Perspectives in Global Health	3
IE 550/PHIL 550	Ethics and International Development	3
NR 515	Natural Resources Policy and Biodiversity	3
NR 520	Applied Optimization in Resource Management	3
NR 521	Natural Resource Administration	2
NR 522	Wilderness Ecosystem Planning	3
NR 525	World Natural Resources	3
NR 535	Action for Sustainable Behavior	3
NR 550	Sustainable Military Lands Management	3
PHIL 545	Concept of Natural Value	3
PHIL 565	Seminar in Environmental Philosophy	3
POLS 670	Politics of Environment and Sustainability	3
POLS 709	Environmental Politics in the U.S.	3
POLS 729	Political Theory and the Environment	3
POLS 739	International Environmental Politics	3
POLS 749	Comparative Environmental Politics	3
POLS 759	Environmental Policy and Administration	3
RS 520	Range Issues and Policy	2
RS 565	Riparian Ecology and Management	3
SOC 564	Environmental Justice	3
SOC 631	Sociology of Rural Development	3
SOC 663	Sociology of Sustainable Development	3
SOC 664	Sociology of Water Resources	3
SOC 665	Sociology of Science and Technology	3
SOC 666	Globalization and Socioeconomic Restructuring	3
SOC 668	Environmental Sociology	3

SOC 669	Global Inequality and Change	3
WR 510	Watershed Management in Developing Countries	2

Quantitative Methods (at least 1 course with an ESS prefix)		
AREC 535/ECON 535	Applied Econometrics	3
AREC 540/ECON 540	Environmental and Natural Resource Economics	3
BSPM 576	Bioinformatics	3
BZ 561	Landscape Ecology	3
ECOL 620	Applications in Landscape Ecology	4
ESS 545	Applications in Greenhouse Gas Inventories	4
ESS 565	Niche Models	4
ESS 575	Models for Ecological Data	4
F 520	Advanced Quantitative Methods in Forestry I	3
F 521	Advanced Quantitative Methods in Forestry II	3
GEOL 551	Groundwater Modeling	3
GEOL 562	Statistical Data Analysis in Earth Resources	3
LAND 520	Geographic Information Systems	3
NR 503/GR 503	Remote Sensing and Image Analysis	4
NR 504	Computer Analysis of Remote Sensing Data	4
NR 505	Concepts in GIS	4
NR 506	GIS Methods for Resource Management	4
NR 512	Spatial Statistical Modeling-Natural Resources	3
NR 523/STAT 523	Quantitative Spatial Analysis	3
NR 554/ANTH 554	Ecological and Social Agent-based Modeling	3
NR 565	Principles of Natural Resources Ecology	3
NR 621	Design of Geographic Information Systems	3
QNT 570	Statistical Decision Making	3
RS 532	Rangeland Ecosystem Sampling	3
RS 640	Vegetation-Environment Analysis	3
SOCR 620	Modeling Ecosystem Biogeochemistry	3
SOCR 670	Terrestrial Ecosystems Isotope Ecology	3
STAA 551	Regression Models and Applications	2
STAA 552	Generalized Regression Models	2
STAA 553	Experimental Design	2
STAA 554	Mixed Models	2
STAA 561	Probability with Applications	2
STAA 562	Mathematical Statistics with Applications	2
STAA 565	Quantitative Reasoning	1

STAA 566	Computational and Graphical Methods	1
STAA 567	Computational and Simulation Methods	1
STAA 571	Survey Statistics	2
STAA 572	Nonparametric Methods	2
STAA 573	Analysis of Time Series	2
STAA 574	Methods in Multivariate Analysis	2
STAA 575	Applied Bayesian Statistics	2
STAA 576	Methods in Environmental Statistics	2
STAT 511A	Design and Data Analysis for Researchers I: R Software	4
STAT 511B	Design and Data Analysis for Researchers I: SAS Software	4
STAT 512	Design and Data Analysis for Researchers II	4
STAT 521	Stochastic Processes I	3
STAT 522	Stochastic Processes II	3
STAT 525	Analysis of Time Series I	3
STAT 526	Analysis of Time Series II	3
STAT 540	Data Analysis and Regression	3
STAT 544/ERHS 544	Biostatistical Methods for Quantitative Data	3
STAT 547/CIVE 547	Statistics for Environmental Monitoring	3
STAT 560	Applied Multivariate Analysis	3
STAT 570	Nonparametric Statistics	3
STAT 600	Statistical Computing	3
STAT 605	Theory of Sampling Techniques	3
STAT 640	Design and Linear Modeling I	4
STAT 645	Categorical Data Analysis and GLIM	3
STAT 650	Design and Linear Modeling II	3
WR 516	Cumulative Effects and Watershed Analysis	3
WR 524/CIVE 524	Modeling Watershed Hydrology	3
WR 575	Snow Hydrology Field Methods	1
WR 674	Data Issues in Hydrology	3

Collaboration/Communication - (at least 1 course)		
ECOL 693	Research Seminar	1
JTC 614	Public Communication Campaigns	3
JTC 660	Communication and Innovation	3
JTC 661	Information Design	3
JTC 662	Communicating Science and Technology	3
NR 501	Leadership and Public Communications	3
NR 600	Advanced Public Relations in Natural Resources	2

M.S. requires a minimum of 30 total credits, including a at least 3 credits each of research and thesis credit:

ESS 698	Research	1-18
ESS 699	Thesis	1-18

Warner College of Natural Resources **Effective Fall 2017**
Department of Ecosystem Science & Sustainability
Ph.D. in Ecosystem Sustainability Link to CIM

Reason for Request: A broad spectrum of ecological and social factors interact to shape the future of our ecosystems and societies. Many units at CSU focus on pieces of these complex systems, and cross-campus strengths are the hallmark of some of our programs. The new degree program we propose will enable students to develop core competencies in ecosystem science – the study of interactions between organisms and the environment - and apply that knowledge to address real-world issues. A broad graduate education with a strong focus on ecosystem science will provide graduates with the ability to understand and deal with the complex scientific issues in sustainability. Together with interdisciplinary education in sustainability science, this unique educational path will serve as a foundation for a wide range of careers including academic and scholarly professions, as experts in government and non-government conservation organizations.

The degree will include core study in biophysical/ecosystem science and applications to global change and sustainability issues. Maintaining ecosystem services in the face of global challenges such as climate change, population growth, globalization, land use intensification, and invasive species requires core competency in ecosystem science coupled with the ability to effectively communicate and work with experts from a variety of separate disciplines. Our program will provide students with the training to develop and implement solutions to global problems related to water resources, food supplies, energy, greenhouse gas management, land use change, and climate change.

Code	Title	Credits
Required Core Courses - (4 credits)		
ESS 501	Principles of Ecosystem Sustainability	3
ESS 692	Seminar	1

Required Areas of Specialization – (a minimum of 20 credits, 9 of which come from ESS courses of 500 level or higher as indicated below)

In consultation with their dissertation advisor, students will select graduate level courses (500-700 level) totaling at least 20 credits across four areas, with at least one from each area: ecosystem science, ecosystem sustainability, quantitative methods, and collaboration/communication. Students are required to earn 9 credit hours from courses with ESS prefix across the areas as indicated below.

Ecosystem Science - (≥ 3 credits; at least 1 course with an ESS prefix)		
ATS 753	Global Hydrologic Cycle	3
ATS 760	Global Carbon Cycle	2
ATS 762	Biosphere-Chemistry-Climate Interactions	2
BZ 572	Phytoremediation	3
BZ 642	Plant Metabolism	3
ECOL 505	Foundations of Ecology	3

ECOL 600	Community Ecology	3
ECOL 620	Applications in Landscape Ecology	4
ESS 524	Foundations for Carbon/Greenhouse Gas Mgmt	3
ESS 543	Current Topics in Climate Change	2
ESS 660	Biogeochemical Cycling in Ecosystems	3
ESS 625/F 625	Ecology of Forest Production	3
F 510	Ecophysiology of Trees	3
F 624	Fire Ecology	3
FW 555	Conservation Biology	3
HORT 571	Soil-Plant-Water Relations/Water Stress	3
HORT 675	Plant Stress Physiology	3
RS 531	World Grassland Ecogeography	3
RS 630	Ecology of Grasslands and Shrublands	3
RS 651	Primary Production and Decomposition	4
SOCR 522	Micrometeorology	3
SOCR 540	Soil-Plant-Nutrient Relationships	3
WR 520	Evapotranspiration	2
WR 574	Advanced Snow Hydrology	4
WR 616	Hillslope Hydrology and Runoff Processes	3

Ecosystem Sustainability - (≥ 3 credits; at least 1 course with an ESS prefix)		
AGRI 500	Advanced Issues in Agriculture	3
AGRI 521	Emerging Issues and Challenges for Global Agr	3
AGRI 562/SOC 562	Sociology of Food Systems and Agriculture	3
AGRI 570	Issues in Animal Agriculture	2
AGRI 601/ENGR 601	Bioenergy Technology	3
AGRI 602	Bioenergy Policy, Economics, and Assessment	3
AGRI 632	Managing for Ecosystem Sustainability	3
AGRI 635	Integrated Forage Management	3
AGRI 637	Understanding Policy and Emerging Issues	3
AGRI 638	Ecosystem Services on Agricultural Lands	3
ANTH 529	Anthropology and Sustainable Development	3
ANTH 530	Human-Environment Interactions	3
ANTH 535	Globalization and Culture Change	3
ANEQ 548	Issues in Manure Management	4
AREC 542	Applied Advanced Water Resource Economics	3
AREC 566/SOC 566	Contemporary Issues in Developing Countries	3
AREC 660	Development of Rural Resource-Based Economies	3

ECOL 592	Interdisciplinary Seminar in Ecology	1-3
ESS 542	Greenhouse Gas Policies	2
GES 520	Issues in Global Environmental Sustainability	3
IE 517/PSY 517	Perspectives in Global Health	3
IE 550/PHIL 550	Ethics and International Development	3
NR 515	Natural Resources Policy and Biodiversity	3
NR 520	Applied Optimization in Resource Management	3
NR 521	Natural Resource Administration	2
NR 522	Wilderness Ecosystem Planning	3
NR 525	World Natural Resources	3
NR 535	Action for Sustainable Behavior	3
NR 550	Sustainable Military Lands Management	3
PHIL 545	Concept of Natural Value	3
PHIL 565	Seminar in Environmental Philosophy	3
POLS 670	Politics of Environment and Sustainability	3
POLS 709	Environmental Politics in the U.S.	3
POLS 729	Political Theory and the Environment	3
POLS 739	International Environmental Politics	3
POLS 749	Comparative Environmental Politics	3
POLS 759	Environmental Policy and Administration	3
RS 520	Range Issues and Policy	2
RS 565	Riparian Ecology and Management	3
SOC 564	Environmental Justice	3
SOC 631	Sociology of Rural Development	3
SOC 663	Sociology of Sustainable Development	3
SOC 664	Sociology of Water Resources	3
SOC 665	Sociology of Science and Technology	3
SOC 666	Globalization and Socioeconomic Restructuring	3
SOC 668	Environmental Sociology	3
SOC 669	Global Inequality and Change	3
WR 510	Watershed Management in Developing Countries	2

Quantitative Methods - (≥ 3 credits; at least 1 course with an ESS prefix)		
AREC 535/ECON 535	Applied Econometrics	3
AREC 540/ECON 540	Environmental and Natural Resource Economics	3
BSPM 576	Bioinformatics	3
BZ 561	Landscape Ecology	3
ECOL 620	Applications in Landscape Ecology	4

ESS 545	Applications in Greenhouse Gas Inventories	4
ESS 565	Niche Models	4
ESS 575	Models for Ecological Data	4
F 520	Advanced Quantitative Methods in Forestry I	3
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GEOL 562	Statistical Data Analysis in Earth Resources	3
LAND 520	Geographic Information Systems	3
NR 503/GR 503	Remote Sensing and Image Analysis	4
NR 504	Computer Analysis of Remote Sensing Data	4
NR 505	Concepts in GIS	4
NR 506	GIS Methods for Resource Management	4
NR 512	Spatial Statistical Modeling-Natural Resources	3
NR 523/STAT 523	Quantitative Spatial Analysis	3
NR 554/ANTH 554	Ecological and Social Agent-based Modeling	3
NR 565	Principles of Natural Resources Ecology	3
NR 621	Design of Geographic Information Systems	3
QNT 570	Statistical Decision Making	3
RS 532	Rangeland Ecosystem Sampling	3
RS 640	Vegetation-Environment Analysis	3
SOCR 620	Modeling Ecosystem Biogeochemistry	3
SOCR 670	Terrestrial Ecosystems Isotope Ecology	3
STAA 551	Regression Models and Applications	2
STAA 552	Generalized Regression Models	2
STAA 553	Experimental Design	2
STAA 554	Mixed Models	2
STAA 561	Probability with Applications	2
STAA 562	Mathematical Statistics with Applications	2
STAA 565	Quantitative Reasoning	1
STAA 566	Computational and Graphical Methods	1
STAA 567	Computational and Simulation Methods	1
STAA 571	Survey Statistics	2
STAA 572	Nonparametric Methods	2
STAA 573	Analysis of Time Series	2
STAA 574	Methods in Multivariate Analysis	2
STAA 575	Applied Bayesian Statistics	2
STAA 576	Methods in Environmental Statistics	2

STAT 511A	Design and Data Analysis for Researchers I: R Software	4
STAT 511B	Design and Data Analysis for Researchers I: SAS Software	4
STAT 512	Design and Data Analysis for Researchers II	4
STAT 521	Stochastic Processes I	3
STAT 522	Stochastic Processes II	3
STAT 525	Analysis of Time Series I	3
STAT 526	Analysis of Time Series II	3
STAT 540	Data Analysis and Regression	3
STAT 544/ERHS 544	Biostatistical Methods for Quantitative Data	3
STAT 547/CIVE 547	Statistics for Environmental Monitoring	3
STAT 560	Applied Multivariate Analysis	3
STAT 570	Nonparametric Statistics	3
STAT 600	Statistical Computing	3
STAT 605	Theory of Sampling Techniques	3
STAT 640	Design and Linear Modeling I	4
STAT 645	Categorical Data Analysis and GLIM	3
STAT 650	Design and Linear Modeling II	3
WR 516	Cumulative Effects and Watershed Analysis	3
WR 524/CIVE 524	Modeling Watershed Hydrology	3
WR 575	Snow Hydrology Field Methods	1
WR 674	Data Issues in Hydrology	3

Collaboration/Communication - (≥ 3 credits)		
ECOL 693	Research Seminar	1
JTC 614	Public Communication Campaigns	3
JTC 660	Communication and Innovation	3
JTC 661	Information Design	3
JTC 662	Communicating Science and Technology	3
NR 501	Leadership and Public Communications	3
NR 600	Advanced Public Relations in Natural Resources	2

Ph.D. requires a minimum of 72 total credits, which may include a maximum of 30 transfer credits from a previous MS, additional courses from the areas of specialization above, and 3 credits each of Research and Dissertation credits:

ESS 798	Research	1-18
ESS 799	Dissertation	1-18

Major Changes to Existing Programs

College of Health and Human Sciences **Effective Fall 2017**
Department of School of Education Link to CIM
Ph.D. in Education and Human Resource Studies, Higher Education Leadership Specialization, College and University Leadership Option

Reason for Request: The requested course changes will upgrade course content to reflect two new doctoral level courses, replacing two master level courses. These changes are intended to eliminate confusion related to the courses at the masters and doctoral level as they apply to this program and existing master level graduate programs.
The changes will clarify the identification of courses that apply to the doctoral level of study. The change in the course subject code of the designation of dissertation credits for this program to EDHE 799 will provide clarification related to accounting and fiscal resources related to credits attributed to this doctoral specialization.
This request is also intended to add a course related to understanding diversity, equity and inclusion. This change is intended to expand our School of Education commitment to advancing students' knowledge and understanding related to leadership on these important educational and societal issues.

Effective Fall 2017 ~~Spring 2014~~

First Year		
~~**EDHE 671**~~	~~Higher Education Administration~~	~~3~~
~~**EDHE 673**~~	~~Student Development Theory~~	~~3~~
EDHE 771	Higher Education Leadership	3
EDHE 773	Student Development in a Collegiate Context	3
EDRM 702	Foundations of Educational Research	3
EDUC 709	Leadership Development	3
EDUC 710	Higher Education Finance	3
	Credits	**15**
Second Year		
EDCL 701	Higher Education Law	3
EDRM 704	Qualitative Research	3
EDRM 705	Qualitative Data Analysis	3
EDUC 675	Analyzing Education Literature	3
EDUC 725	Professionalism in Education and Leadership	3
	Credits	**15**
Third Year		
EDOD 769	Theory and Practice of Change	3
~~**EDRM 666**~~	~~Program Evaluation~~	~~3~~
EDRM 700	Quantitative Research Methods	3
EDRM 707	Quantitative Data Collection Methods/Analysis	3
EDUC 714	Education Policy Analysis	3
EDUC 715	Critical Issues for Special Populations	3
	Credits	**15**

Fourth Year		
EDCL 750	Simulated Presidential Cabinet I	3
EDHE 799	Dissertation	9
EDRM 792B	Seminar: Proposal Development	3
~~**EDRM 799**~~	~~Dissertation~~	~~9~~
	Credits	**15**
	Program Total Credits	**60**
Plan of Study Grid		

A minimum of 60 credits are required to complete this program.

College of Natural Sciences
Master of Natural Sciences Education, Plan C (M.N.S.E.)

Effective Fall 2017
Link to CIM

Reason for Request: A request has been submitted to change NSCI 580A1 from an experimental course to a regular course with a new number. The request is to add NSCI 580A1 (NSCI 612) to the MNSE program of study. It is to be added to the education courses as an alternative to EDUC 619. Students are required to take 9 credits (3 courses) in the education "core"; those courses are EDRM 602, EDUC 619, and EDUC 660. The proposed change would be:
EDRM 602
EDUC 619 or NSCI 612
EDUC 660
There are no other changes proposed.

Effective ~~Effective Fall~~ 2014 Fall 2017

Code	Title	Credits
OPTION 1:		
Education Courses		
EDRM 602	Action Research [1]	3
EDUC 619	Curriculum Development [1]	3
or **NSCI 612**	Myth Busters – Science/Controversy/Evaluation	
EDUC 660	Advanced Methods-Science and Math Instruction	3
Natural Science Courses		
Select at least 18 credits from the following:		18-19
NSCI 619	Physics for Science Educators [1]	
NSCI 620	Chemistry for Science Educators [1]	
NSCI 630	Spectroscopy for Science Educators [1]	
NSCI 640	Energetics for Science Educators [1]	
NSCI 650	Pollution and Environmental Biology for Educators [1]	
NSCI 660	Evolutionary Biology for Educators [1]	

~~STAT 511~~	~~Course STAT 511 Not Found~~	
STAT 511A	Design and Data Analysis for Researchers I: R Software	
Independent Study		
NSCI 695	Independent Study for the MNSE [2]	3
Program Total Credits		**30-31**

Code	**Title**	**Credits**
OPTION 2:		
Education Courses		
EDRM 602	Action Research [1]	3
EDUC 619	Curriculum Development [1]	3
or **NSCI 612**	Myth Busters – Science/Controversy/Evaluation	
EDUC 660	Advanced Methods-Science and Math Instruction	3
Natural Science Courses		
Select at least 15 credits from the following:		15-16
NSCI 619	Physics for Science Educators [1]	
NSCI 620	Chemistry for Science Educators [1]	
NSCI 630	Spectroscopy for Science Educators [1]	
NSCI 640	Energetics for Science Educators [1]	
NSCI 650	Pollution and Environmental Biology for Educators [1]	
NSCI 660	Evolutionary Biology for Educators[1]	
~~STAT 511~~	~~Course STAT 511 Not Found~~	
STAT 511A	Design and Data Analysis for Researchers I: R Software	
Research		
NSCI 698	Research Experience in Natural Sciences [3]	6
Program Total Credits		**30-31**

[1] Offered only as an online or blended course.

[2] The independent study requires enrollment in the summer session after completing the program's course and research requirements. It involves weekly meetings of the student with her/his research advisor, but does not require full-time residency on campus.

[3] Requires registration for a 6-week summer session at full time. Students will complete the research experience requirement in the summer after their first year they are enrolled in the Program. Instructors are graduate student advisors who hold regular faculty appointments in the Departments of Biology, Chemistry, or Physics.

University Curriculum Committee
November 11, 2016
CONSENT AGENDA

Experimental Courses – 1st Offering

	Course Title	Effective Term
ART 580A1	Issues in Art Education and the Public	Summer 2017
CS 581A3	Software Maintenance & Evolution	Spring 2017
ETST 580A3	Research and Publication in Ethnic Studies	Spring 2017
LSGN 380A1	Advanced Study of Deafness and ASL	Fall 2017
MECH 681A2	Defects in Crystals	Spring 2017
MECH 681A3	Techno-Economic and Life Cycle Modeling	Spring 2017
NRRT 180A1	New to the Major Seminar	Spring 2017
NSCI 181A1	College of Natural Sciences Career Seminar	Spring 2017

Minor Changes to Courses

	Course Title	Requested Change	Effective Term
PSY 341	Organizational Psychology Laboratory	**Prerequisite Courses:** PSY 340 or concurrent registration. ~~None.~~ **Registration Information:** ~~Must have concurrent registration in PSY 340.~~Sections may be offered: Online.	Fall 2017
PSY 371	Psychological Measurement and Testing Lab ~~Laboratory~~	**Prerequisite Courses:** PSY 370 or concurrent registration. ~~None.~~ **Registration Information:** ~~Must have concurrent registration in PSY 370.~~ Sections may be offered: Online.	Fall 2017

Changes to Programs

College of Engineering **Fall 2017**
Dual Degree Program: Biomedical Engineering and Chemical and Biological Engineering Link to CIM

Reason for Request: STAT 511 is no longer offered. STAT 511A or STAT 511B are acceptable alternatives

Approved CBE Technical Electives for BME-CBE BS Program*

~~STAT 511~~	~~Course STAT 511 Not Found~~	~~4~~
STAT 511A	Design and Data Analysis for Researchers I: R Software	4
STAT 511B	Design and Data Analysis for Researchers I: SAS Software	4

**This list is 6 pages long, so it has been truncated to show only the changes that have been proposed.*