Agenda Item #15-15
Effective: Fall 2015

Proposal for Dual Master's Degree between Sustainable Energy and Biological Sciences

Proposal submitted by: Drs. Thomas Canam and Karen Gaines
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Date of BIO Approval: 1/28/14
Date of SE Approval: 1/28/14
Date of COSCC Approval: 10/31/14
Date of LCBASCC Approval: 11/20/14
Date of CGS Approval:

We propose a dual Master's Degree between **Biological Sciences** (thesis and internship options) and **Sustainable Energy** because of the significant overlap of research and education interests between these two programs. Bioenergy is a sub-discipline within sustainable energy that focuses on using organisms directly or indirectly for sustainable energy production.

On January 28, 2014, the Unit A faculty in the Department of Biological Sciences voted in favor of the proposed dual degree program for both the thesis option (82% YES) and internship option (76% YES).

A. Requirements for Dual Master's Degrees

Academic units may seek approval to create a dual Master's Degree program by combining any of these degree programs enabling graduate candidates to earn two degrees concurrently leading to two different degree designations on the transcript and two separate diplomas. The mission of a dual master's degree program is to allow graduate candidates to pursue complementary programs of graduate study simultaneously. The curriculum in each approved program includes a minimum number of semester hours of study unique to each individual degree and a maximum number of semester hours that the two degree programs share. Dual master's degree programs are approved by the Council on Graduate Studies and are identified as graduate study options in each of the academic units that provides courses for the dual degree program. Individualized dual degree programs are not offered. Candidates who seek a dual degree program of study must be eligible for admission to each individual program and must retain an acceptable scholarly record in each program to successfully earn each degree.

i. Requirements

- **Total Semester Hours**: A minimum of 48 semester hours of study is required for all dual-degree programs. A minimum of 18 semester hours of study is required in each of the two degree programs. A maximum of 12 semester hours may be shared between the two programs. This requirement may not be waived or appealed.
- **Residency Semester Hours**: A minimum of 36 semester hours of the 48 hours is required in residence. Residence is defined as credit for courses taught by Eastern Illinois University faculty at on-campus or off-campus sites. This requirement may not be waived or appealed.

- **5000 Level Semester Hours**: A minimum of 36 semester hours of the 48 semester hours must be in courses numbered 5000 or higher.

ii. Restrictions

- **Research, Internship and Special Course Restrictions**: A minimum of 36 semester hours of the 48 hours must be completed in courses exclusive of independent study, research, thesis, internship, and special courses.
- **4750-4999 Hour Restrictions**: A maximum of 12 semester hours of courses numbered 4750 to 4999 may be applied to degree programs.
- **Research Hour Restrictions:** A maximum of six semester hours of independent study may be applied to each degree. A maximum of six semester hours of research may be applied to each degree. A maximum of six semester hours of thesis may be applied to each degree. A maximum of nine semester hours in a combination of independent study, research, or thesis may be applied to each degree.
- **Provisional and Non-degree Hour Restrictions**: A maximum of 12 semester hours earned as a provisional or non-degree student may be applied to a dual degree program. There is no guarantee that any credit earned as a provisional or non-degree student may later apply to a degree.

B. Proposed Requirements for Dual Degree (<u>thesis</u> option in Biological Sciences):

18 credits stand-alone for MS in Biological Sciences, which includes the following required courses:

BIO 5900 – Research (3 credits)[1]
BIO 5950 – Thesis (3 credits)
BIO 5150 – Seminar (1-2 credits)

24 credits stand-alone for MS in Sustainable Energy (in consultation with CENCERE committee); a complete list of available courses for this degree is appended.

12 credits <u>shared</u> (maximum) between programs:

6 credits to be shared as follows:

CERE 5953 – Sustainable Energy Research (3 credits) equivalent to BIO 5900 – Research (3 credits)[1]
CERE 5983 – Sustainability Practicum (3 credits) equivalent to BIO 5990 – Independent Study (3 credits)

6 credits (or less) can be shared from the following list of Sustainable Energy coursework (with graduate committee approval):

BIO5333 – Bioenergy and Bioresources (3 credits)
CMN/ENG 5260 – Communication in Science and Technical Organizations (3 credits)
ECN 5411 – Seminar in Natural Resources and Environmental Economics (3 credits)

[1] 6 credits of BIO 5900 (or equivalent) are required for the MS in Biological Sciences Thesis Option

MBA 5001 – Business Operations in Sustainable Energy Facilities
MBA 5660 – Operations Management (3 credits)
MBA 5680 – Organizational Behavior and Group Dynamics (3 credits)
PHY 5233 – Energy and the Environment (3 credits)
PLS 5163 – Subnational Government (3 credits)
PLS 5843 – Seminar in Public Policy (3 credits)
TEC 5103 – Science and Technology of Leadership (3 credits)
TEC 5133 – Total Quality Systems (3 credits)
TEC 5143 – Research in Technology (3 credits)
TEC 5533 – Biomass Gasification (3 credits)

C. Proposed Requirements for Dual Degree (<u>internship</u> option in Biological Sciences):

20 credits stand-alone for MS in Biological Sciences, which includes the following required courses:
BIO 5980 – Internship (3 credits)[2]
BIO 5150 – Seminar (1-2 credits)

24 credits stand-alone for MS in Sustainable Energy (in consultation with CENCERE committee); a complete list of available courses for this degree is appended.

12 credits <u>shared</u> (maximum) between programs:

6 credits to be shared as follows:
CERE 5983 – Sustainability Practicum (3 credits) equivalent to BIO 5980 – Internship (3 credits)[2]
CERE 5953 – Sustainable Energy Research (3 credits) equivalent to BIO 5990 – Independent Study (3 credits)[3]

6 credits (or less) can be shared from the following list of Sustainable Energy coursework (with graduate committee approval):
BIO5333 – Bioenergy and Bioresources (3 credits)
CMN/ENG 5260 – Communication in Science and Technical Organizations (3 credits)
ECN 5411 – Seminar in Natural Resources and Environmental Economics (3 credits)
MBA 5001 – Business Operations in Sustainable Energy Facilities
MBA 5660 – Operations Management (3 credits)
MBA 5680 – Organizational Behavior and Group Dynamics (3 credits)
PHY 5233 – Energy and the Environment (3 credits)
PLS 5163 – Subnational Government (3 credits)
PLS 5843 – Seminar in Public Policy (3 credits)
TEC 5103 – Science and Technology of Leadership (3 credits)
TEC 5133 – Total Quality Systems (3 credits)
TEC 5143 – Research in Technology (3 credits) TEC 5533 – Biomass Gasification (3 credits)

[2] 6 credits of BIO 5980 (or equivalent) are required for the MS in Biological Sciences Internship Option
[3] 3 credits of BIO 5990 (or equivalent) are required for the MS in Biological Sciences Internship Option

Appendix:

Master of Science is Sustainable Energy Coursework
36 credits required (3 each from 1-12)

Science Cluster		
1	BIO 5333 Bioenergy and Bioresources	3 cr
2	CHM 5007 Energy Chemistry	3 cr
3	PHY 5233 Energy and the Environment	3 cr
4	TEC 5533 Biomass Gasification	3 cr
Technology Management		
5	TEC 5103 Science and Technology of Leadership, or MBA 5680 Organizational Behavior and Group Dynamics	3 cr
6	TEC 5133 Total Quality Systems, or MBA 5660 Operations Management	3 cr
7	MBA 5001 Business Operations in Sustainable Energy Facilities	3 cr
Policy and Economics		
8	PLS 5843 Seminar in Public Policy, or PLS 5163 Subnational Government, or ECN 5411 Seminar in Natural Resources and Environmental	3 cr
Research Methods		
9	TEC 5143 Research in Technology	3 cr
Communications		
10	CMN/ENG 5260 Communication in Science and Technical	3 cr
Research and Experience		
11	CERE 5983 Sustainability Practicum	3 cr
12	CERE 5953 Sustainable Energy Research	3 cr