UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: ___Frank Newton___ phone number: ___831-6295___________

Department: ___College of Marine & Earth Studies_____ email address_fanewt@udel.edu___

Action: ___________________________Add minor___________________
(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term_____________________________________08S____________________________________
(use format 04F, 05W)

Current degree________________________________________________________________
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: _________________________________________
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name:_____ Minor in Marine Studies (MAST)________________
Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising or Deleting:

Undergraduate major / Concentration:______________________________________
(Example: Applied Music – Instrumental  degree BMAS)

Undergraduate minor:____________________________________________________
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change:_________________________________
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study:______________________________________________
(Example: Animal Science: MS  Animal Science:  PHD  Economics: MA Economics: PHD)

Graduate minor / concentration:____________________________________________

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?
(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

**MAST 4XX: SEMINAR: Marine Environmental Issues** - this course engages students in an exploration and discussion of local, regional, national and global scale marine related issues. Students will develop and refine critical thinking skills and interdisciplinary problem-solving strategies. It serves to be a culminating experience for students in the minor to utilize and connect all they have learned in the (minor) coursework and to their major discipline.

**MAST 4YY/6YY Marine Invertebrate Diversity** - this course will provide a classical overview of marine invertebrate diversity. This supports the program objectives by giving students information that extends both the breadth and depth of their understanding of the marine environment and its inhabitants.

The following courses are being revised to request a dual listing of 402, 421, 427 and 437 respectively:

- MAST 602 Introduction to Physical Ocean Science
- MAST 621 Coastal Field Biology (also increasing from 2 credits to 3)
- MAST 627 Marine Biology
- MAST 637 Geological Oceanography

**Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education:**
http://www.ugs.udel.edu/gened/

The Minor in Marine Studies supports the 10 goals of undergraduate education in the following ways:

1. Courses in the minor will require that students communicate effectively in verbal and written ways.
2. Students will need to use information technologies and critical reasoning skills.
3. Students will be asked to integrate in-class learning in solving real life problems.
4. Students will understand the impact of marine environments on humans and vice versa locally, regionally, and globally.

**Identify other units affected by the proposed changes:**
(Attach permission from the affected units. If no other unit is affected, enter “None”)

- Department of Biological Science- permission from Dr. Daniel Carson, Chair attached
- Department of Entomology and Wildlife Ecology-permission from Dr. Doug Tallamy, Chair and letter of support from Chuck Mason, faculty member of included class attached
- Department of Geography-permission from Dr. Brian Hanson, Chair attached
- Department of Geological Sciences-permission from Dr. Susan McGeary, Chair attached

**Describe the rationale for the proposed program change(s):**
(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The State of Delaware and the University of Delaware have rich traditions connected to the marine environment. We are a state with: 381 miles of tidal shoreline; 90,000 acres of tidal wetlands; one of the largest estuaries on the East Coast; inland bays; one of the busiest canals in the United States; and beaches, tourism, industry and infrastructure associated with the ocean. As such, it is imperative to have a citizenry that is well versed in the issues that impact our marine and coastal areas.

The Environmental Science Program, run by the Department of Geography in collaboration with the Departments of Biological Sciences, Geological Sciences and CMES, offers an interdisciplinary Bachelor of Science degree in Environmental Sciences. Students choose one of four specialized foci: the atmospheric environment; the biological environment; the geological environment; or the
marine environment. It is typical for students to also pursue a minor in the same area as their specialization. This option is currently available to those focusing in the atmospheric (Geography minor), biological (Biology minor) and geological (Geology minor) environments. The proposed minor would fill the void that exists for those students specializing in the marine environment.

Through the Department of Geological Sciences, CMES also offers a minor in Marine and Coastal Geoscience. This minor allows students to learn about the geological hazards and sedimentary processes in marine environments.

The Environmental Science major and the coastal geology minor meet the needs of a group of UD students, however, there is an unmet need for a broader focus on marine studies (specifically biological and physical studies). The proposed minor would satisfy that need.

The proposed minor will allow those being educated in various disciplines to gain a deeper understanding of and appreciation for the importance of the aquatic world, the impact of humans and other global inhabitants on the oceans (and its impact on them) and the interconnectedness of the systems on our blue planet.

Program Requirements:
(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and include a side-by-side comparison of the credit distribution before and after the proposed change.)

**Minor in Marine Studies (MAST):** The Minor in Marine Studies is designed for those students who are interested in gaining a deeper understanding of the world ocean, the seabed, and the coastal zone. Students may choose either of two tracks: Physical Ocean Science or Marine Ecosystems. Students choosing either track must complete 9 credits of required courses and 9 credits of electives. Commonality of traditional classroom experience is achieved by requiring all students to complete MAST 482, *Introduction to Ocean Sciences*. Commonality of problem-based-learning experience is achieved by requiring all students to take MAST 4XX, *Seminar in Marine Environmental Issues*. Ordinarily a student would enroll in the case-study seminar course after all other course requirements have been met.

The Minor in Marine Studies consists of 18 credits: three required courses and three elective courses of three credits each. From the elective courses, students should take at least two courses at the 400 or 600 level, and at least one course with an “MAST” listing. Students must receive a grade of “C-” or better for the course to count toward completion of the minor.

**Required Courses ……………………………. 9 credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MAST 482</td>
<td>Introduction to Ocean Sciences</td>
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<tr>
<td>MAST 4XX</td>
<td>Seminar in Marine Environmental Issues</td>
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<tr>
<td>MAST 402/602</td>
<td>Introduction to Physical Ocean Science</td>
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<tr>
<td>OR MAST 427/627</td>
<td>Marine Biology</td>
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</table>

**Tracks:**

**Physical Ocean Science (pick 3 of 6).………………9 credits**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>GEOG 420</td>
<td>Atmospheric Physics</td>
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<td>GEOG 357</td>
<td>Paleoclimatology</td>
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<tr>
<td>GEOL 414/614</td>
<td>Quaternary Geology and Geochronology</td>
</tr>
<tr>
<td>GEOL 434/634</td>
<td>Geology of Coasts</td>
</tr>
<tr>
<td>MAST 437/637</td>
<td>Geological Oceanography</td>
</tr>
<tr>
<td>MAST 628</td>
<td>Offshore Wind Power: Science, Engineering, &amp; Policy</td>
</tr>
</tbody>
</table>
Marine Ecosystems (pick 3 of 6)…………………………..9 credits
BISC 302 General Ecology
MAST/ENWC 314 Comparative Terrestrial and Marine Ecology
MAST 421/621 Coastal Field Biology
MAST 4YY/6YY Marine Invertebrate Diversity
MAST 629-011 Topics in Marine Ecology: Ichthyology
BISC 637 Population Ecology

Substitutions may be made for courses in a track as approved by the faculty coordinator of the minor.
TOTAL CREDITS . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 18

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)
Department Chairperson _______________________________ Date 21-August-2007

Dean of College _______________________________ Date August 23, 2007

Chairperson, College Curriculum Committee _______________________________ Date 23-August-2007

Chairperson, Senate Com. on UG or GR Studies _______________________________ Date
Chairperson, Senate Coordinating Com. _______________________________ Date
Secretary, Faculty Senate _______________________________ Date
Date of Senate Resolution _______________________________ Date to be Effective
Registrar _______________________________ Program Code _______________________________ Date
Vice Provost for Academic Programs & Planning _______________________________ Date
Provost _______________________________ Date
Board of Trustee Notification _______________________________ Date

Revised 5/02/06 /khs
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Instructors</th>
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<th>Modified</th>
<th>New</th>
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<td><strong>MAST Courses</strong></td>
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<tr>
<td>MAST/ENWC 314</td>
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<tr>
<td>MAST 482</td>
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<td>MAST 4XX</td>
<td>Seminar in Marine Environmental Issues</td>
<td>Sharp Sommerfield</td>
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<td>Offshore Wind Power</td>
<td>Kempton Firestone</td>
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<td>MAST 629</td>
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<td>X</td>
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</table>
Frank - Biological Sciences has no objection to your proposed inclusion of the BISC courses in the MAST minor curriculum.

Dan

Daniel D. Carson, Ph.D.
Trustees Distinguished Professor
& Chairman
Dept. Biological Sciences
University of Delaware
118 Wolf Hall
Newark, DE 19716
(302) 831-4296
(302) 831-1033 FAX
dcarson@udel.edu
From: Brian Hanson [mailto:hanson@UDel.Edu]
Sent: Tuesday, August 07, 2007 2:25 PM
To: Frank Newton
Subject: Re: Proposal of an undergraduate minor in Marine Studies

The Geography Department strongly supports the creation of a minor in Marine Studies as a useful track for our majors and for those in Environmental Science. We will be happy to have Marine Studies minor students in these GEOG courses, and any others you may see fit to use.

Brian Hanson
Professor & Chair
Geography Department
University of Delaware
Franklin A. Newton
Assistant Dean for Student Services
College of Marine & Earth Studies
111 Robinson Hall
University of Delaware
Newark, DE 19716

14 August 2007

Dear Frank,

The Department of Geological Sciences enthusiastically endorses the formation of the new Minor in Marine Studies and supports the inclusion of GEOL 434/634 and GEOL 414/614 in the minor. After all those hours of talking about undergraduate opportunities in marine studies to prospective students and their families at Delaware Discovery Days, the need for such a program is clear.

Sincerely,

Sue

Dr. Susan McGeary
Chair and Associate Professor
Dept. of Geological Sciences
College of Marine and Earth Studies
Nancy:

Yes, I support continuing the team teaching of ENWC/MAST 314 and including it as part of the curriculum for the minor in Marine Science. I think the teaching relationship between our department and your college has a lot of positives and it will be great to continue the interaction. I think the way we presented the course through the interchange and dialog between the two of us in the classroom together was very successful.

Incidentally, I believe that some of our majors will welcome an opportunity to minor in Marine Science.

Best Regards,
Chuck
Franklin,

I am in Portland all this week so my approval will have to come in the form of this email. I think it is a good idea and I support it. Feel free to include ENWC 314 in your undergraduate minor.

DWT

-----Original Message-----
From: Frank Newton [mailto:fanewt@cms.udel.edu]
Sent: Mon 8/20/2007 9:22 AM
To: Tallamy, Doug
Subject: FW: MAST/ENWC 314

Dr. Tallamy-

I write seeking your assistance. As you are aware from the attached emails, a committee of CMES Faculty has organized a proposal for an undergraduate minor in "Marine Studies". It will be open to all majors but we expect a large number to be from Biology, Environmental Science and the physical sciences. Based on Chuck's email, there may be some interest among Entomology and Wildlife Ecology majors as well.

A description of the proposed minor is attached for your consideration. Relevant to your department is the inclusion in the curriculum of one cross listed course. The course is not required, but is included as an option for students choosing the Marine Ecosystemtrack.

The specific course is ENWC/MAST 314 Comparative Terrestrial and Marine Ecology.

As you are aware, the faculty senate requires that affected departments indicate that they support (or don't object to) the inclusion of their courses in the minor curriculum. It is my hope that you can send me a statement (hard copy or emailed) indicating your department's approval so that I may include it with the packet to the senate. It has cleared our internal process and we are hoping to get it to faculty senate at the start of the academic year. With that in mind, I was hoping to get your statement by Friday, August 24, 2007. If that date doesn't work or if you have any questions, please let me know.

Thank you in advance for your time and consideration.

Franklin A. Newton
Assistant Dean for Student Services
College of Marine & Earth Studies
www.ocean.udel.edu
111 Robinson Hall
302.831.6295 (ph)
302.831.4389 (fx)