

# 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**

MAST 482	Introduction to Ocean Sciences
MAST 4XX	Seminar in Marine Environmental Issues
{ MAST 402/602 <b>OR</b> MAST 427/627	Introduction to Physical Ocean Science
	Marine Biology

**Tracks:**

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

GEOG 420	Atmospheric Physics
GEOG 357	Paleoclimatology
GEOL 414/614	Quaternary Geology and Geochronology
GEOL 434/634	Geology of Coasts
MAST 437/637	Geological Oceanography
MAST 628	Offshore Wind Power: Science, Engineering, & Policy

**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 *Julia [Signature]* Date 21-August-2007

Dean of College *Nancy M. Gargan* Date August 23, 2007

Chairperson, College Curriculum Committee *C.E. [Signature]* 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 \_\_\_\_\_

### MAST Minor: Course Data Grid

<b>Course Number</b>	<b>Course Title</b>	<b>Instructors</b>	<b>Extant</b>	<b>Modified</b>	<b>New</b>
<b><i>CMES Courses</i></b>					
MAST/ENWC 314	Comparative Terrestrial and Marine Ecology	Hanson? Mason	X		
MAST 482	Introduction to Ocean Sciences	Hanson Wong	X		
MAST 4XX	Seminar in Marine Environmental Issues	Sharp Sommerfield			X
MAST 4YY/6YY	Marine Invertebrate Diversity	Gaffney? Miller? Warner?			X
MAST 402/602	Introduction to Physical Ocean Science	Muncheow Kirwin		X	
MAST 421/621	Coastal Field Biology	Miller		X	
MAST 427/627	Marine Biology	Miller		X	
MAST 628	Offshore Wind Power	Kempton Firestone	X		
MAST 629	Ichthyology	T. Targett		X	
<b><i>BISC Courses</i></b>					
BISC 302	General Ecology		X		
BISC 637	Population Ecology		X		
<b><i>GEOG Courses</i></b>					
GEOG 357	Paleoclimatology		X		
GEOG 420	Atmospheric Physics		X		
<b><i>GEOL Courses</i></b>					
GEOL 414/614	Quaternary Geology and Geochronology		X		
GEOL 434/634	Geology of Coasts		X		

From: Dan Carson [mailto:[dcarson@UDel.Edu](mailto:dcarson@UDel.Edu)]  
Sent: Thursday, August 09, 2007 3:42 PM  
To: Franklin A Newton  
Subject: Use of BISC courses in proposed MAST minor

Frank - Biological Sciences has no objection to your proposed inclusion of the BISC courses in the MAST minor curriculum.

Dan

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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](mailto: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



COLLEGE OF MARINE AND EARTH STUDIES

DEPARTMENT OF  
GEOLOGICAL SCIENCES

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Ph: 302/831-2569  
Fax: 302/831-4158  
<http://www.geosci.udel.edu>

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 McGearry  
Chair and Associate Professor  
Dept. of Geological Sciences  
College of Marine and Earth Studies



-----Original Message-----

From: Charles Mason [<mailto:mason@UDel.Edu>]

Sent: Friday, August 17, 2007 8:48 AM

To: Nancy Targett

Cc: Judith Hough-Goldstein; Douglas Tallamy

Subject: Re: MAST/ENWC 314

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

**From:** Tallamy, Doug [mailto:dtallamy@udel.edu]  
**Sent:** Tuesday, August 21, 2007 9:24 AM  
**To:** Frank Newton  
**Subject:** RE: MAST/ENWC 314

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 Ecosystems track.

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  
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