8. Special Consideration

**College of Geosciences**
Department of Oceanography
BS in Oceanography
Request for a new degree program
SPECIAL CONSIDERATION
SPECIAL CONSIDERATION

COLLEGE OF GEOSCIENCES
DEPARTMENT OF OCEANOGRAPHY
BS IN OCEANOGRAPHY
REQUEST FOR A NEW DEGREE PROGRAM
April 8, 2016

MEMORANDUM

TO: Dr. Chris Houser
   Associate Dean, Undergraduate and Faculty Affairs, College of Geosciences

FROM: Dr. Debbie Thomas
   Department Head, Department of Oceanography

SUBJECT: New Bachelor of Science degree in Oceanography

Please find attached a proposal for a new Bachelor of Science degree in Oceanography to be offered by the Department of Oceanography.

Please let me know if any additional information is needed.
Texas A&M University
New Certificate, Bachelors, Masters, or Doctoral Program
Undergraduate • Graduate • Professional
• Proposal Checklist •

Program request type: □ Undergraduate □ Graduate □ First Professional (ex., DVM, JD, MD, etc.)

Requested by the Department or Unit of: Oceanography

Program Type, Level, Designation, Title, Description, Hours
Program Type: □ Certificate Program □ Degree Program
Program Level: □ UG Certificate □ Grad Certificate □ Bachelor □ Master □ Doctoral □ Professional
Degree Designation (i.e., BS, BA, MA, MS, MAgr, MEd, PhD, EdD, etc.) BS
Title of proposed program: Oceanography
Proposed CIP Code (if known): 40.0607.0002

Brief program description (provide a catalog description for undergraduate and graduate certificates):
The BS in Oceanography provides students with an interdisciplinary education and training in one of three areas of ocean science: Ocean Observing Systems and Technology (OOST), Ocean Climate (OC) and Marine Ecosystem Science and Health (MESH). All students will gain skill in handling, evaluating and analyzing large datasets.

The BS in Oceanography curriculum: 1) Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields; 2) Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and 3) Emphasizes critical thinking and problem solving skills.

Minimum program semester credit hours (SCH) Certificate - 12 hours* Bachelors - 120 hours Masters - 30 hours

Proposed program hours: ______

*12 hours minimum to appear on transcript

Certificate Programs □ Embedded
Students take coursework that will result in a degree and certificate being earned at the same time.

□ Standalone
Non-degree seeking students take coursework to earn a certificate only (no degrees are awarded).

Off-Campus or Distance Delivery
% of Program a student can take off-campus or through Distance Education

Program Start Date SACSCOC Approval** When Provost needs to inform SACSCOC

□ 25% ______ Notification Only ______
□ 50% ______ Approval Required 6 months before first day of program
□ 80% ______ Approval Required 6 months before first day of program
□ 100% ______ Approval Required 6 months before first day of program

**Notification letter arranged through the Vice Provost for Academic Affairs and sent by TAMU President.

Program Delivery Mode

□ On-campus TAMU College Station
□ Broadcast / TTVN ______
□ Specific off-campus location*** ______
□ Distance Education / Internet □ In-State □ Out-of-State Start Date ______
□ Out-of-Country Will this program be offered with another institution? □ Yes □ No

Page 1 Revised 04.11.2014
Texas A&M University
New Certificate, Bachelors, Masters, or Doctoral Program
Undergraduate • Graduate • Professional
• Proposal Checklist •
If yes, contact the Vice Provost for Academic Affairs for additional reporting requirements.

***Is this an approved SACSCOC location? ☐ Yes ☐ No If no, a program prospectus must be sent to SACSCOC.
Approved locations as of March 2012: TAMU-Galveston, TAMU-Qatar, University Center-The Woodlands, CityCentre-Houston, Dubai and Saudi Arabia.

Program Funding
Has program funding been finalized at the department or college level? ☑ Yes ☐ No
If no, explain or attach budget: ______

Will new costs for the first five years of the program be under $2 million? ☑ Yes ☐ No
If new costs exceed $2 million, coordinating board approval is required.
**Submitted by (Contact Person):**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shari A. Yvon-Lewis</td>
<td><a href="mailto:Syvon-lewis@tamu.edu">Syvon-lewis@tamu.edu</a></td>
</tr>
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<table>
<thead>
<tr>
<th>Title</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor and Assistant Department Head</td>
<td>979-458-1816</td>
</tr>
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**Certification Statement**

By signing below, the Dean of the College certifies the proposed program complies with coordinating board standards. If the program is delivered through Distance Education, the Dean of the College certifies that they are following the *Principles of Good Practice for Academic Degree and Certificate Programs and Credit Courses Offered Electronically*.

*Use additional signature lines if program is between three or more departments or colleges.*

<table>
<thead>
<tr>
<th>Signature, Department Head or Interdisciplinary Program Chair</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deborah Thomas</td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Typed or Printed Name</th>
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</thead>
<tbody>
<tr>
<td>Chair, College Review Committee</td>
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</table>

<table>
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<table>
<thead>
<tr>
<th>Signature, Department Head or Interdisciplinary Program Chair (if joint program)</th>
<th>Date</th>
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<table>
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<th>Typed or Printed Name</th>
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<tr>
<td>Dean of College</td>
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<table>
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<tr>
<th>Chair, University Curriculum Committee or Graduate Council</th>
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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Additional Approvals Required: Faculty Senate and President.
To:        Dr. Debbie Thomas, Professor, Department Head, Department of Oceanography

From:      Patrick Louchouarn, Executive Associate Vice President for Academic Affairs and Chief Academic Officer (TAMUG), Associate Provost (TAMU)

Subject:   BS in Oceanography (MOST)

Date:      11 April 2016

Dear Dr. Thomas,

I thank you for sending the Department of Oceanography’s proposal for a new B.Sc. program in Oceanography with a focus on an interdisciplinary education and training in one of three areas of ocean science: Ocean Observing Systems and Technology (OOST), Ocean Climate (OC) and Marine Ecosystem Science and Health (MESH). Your proposal offers a new and exciting option for students who seek to obtain a degree in an interdisciplinary STEM program at Texas A&M. The expertise of your Department and of your Faculty will strongly support this new degree in Geoscience, which will offer new opportunities to students on both the College Station and Galveston campuses.

This proposed program complements, but does not compete with, existing marine sciences degree programs at Texas A&M University Galveston. Texas A&M University at Galveston thus supports this proposal and has no objection for OCNG to offer it.

Sincerely yours,

Patrick Louchouarn, Ph.D.
Executive Associate Vice President of Academic Affairs, and
Chief Academic Officer, TAMUG
Associate Provost, TAMU

Professor
Dept. of Marine Sciences (TAMUG)
Dept. of Oceanography (TAMU)
# Request: New Program - Bachelor's Master's

## Program Approval Checklist

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<thead>
<tr>
<th>Institution</th>
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<tr>
<td>Program Name</td>
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<tr>
<td>Proposed CIP Code</td>
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<tr>
<td>Program Description</td>
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<td>Administrative Unit</td>
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<td>Implementation Date</td>
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<tr>
<td>Contact Person</td>
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<tr>
<td>Name</td>
<td>YES</td>
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<td>Title</td>
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<td>Email</td>
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<td>Telephone</td>
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<tr>
<td>Job Market Need</td>
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<td>Student Demand</td>
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<td>Degree Requirements</td>
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<td>Curriculum</td>
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<td>Faculty</td>
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<td>Students</td>
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<td>Library</td>
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<tr>
<td>Facilities and Equipment</td>
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<tr>
<td>Accreditation</td>
<td>YES</td>
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<tr>
<td>Evaluation</td>
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</tr>
<tr>
<td>Cost and Funding</td>
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</table>

## Briefing/Minute Order

| Signatures | YES |

## Program Review Outline

| Complete | YES |

## Certification Form

| Signatures |   |

## Comments:

## Approval:
AGENDA ITEM BRIEFING

Submitted by:  Michael K. Young, President/CEO
Texas A&M University

Subject:  Approval of a New Bachelor of Science Degree Program with a major in Oceanography and Authorization to Request Approval from the Texas Higher Education Coordinating Board

Proposed Board Action:

Approve the establishment of a new degree program at Texas A&M University leading to a Bachelor of Science degree with a major in Oceanography, authorize the submission of this degree program to the Texas Higher Education Coordinating Board (THECB) for approval and certify that all applicable THECB criteria have been met.

Background Information:

The new Bachelor of Science degree with a major in Oceanography will be administered by the Department of Oceanography. We currently offer a thesis based MS degree in Oceanography, a PhD in Oceanography and have recently developed a non-thesis professional Master of Ocean Science and Technology. A natural extension of our current strength in educating future ocean researchers and professional ocean scientists is to offer a Bachelor of Science degree in Oceanography.

The exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms) is driving an increase in the need and opportunities for well-trained ocean scientists. Estimates of revenues for businesses that have some ocean enterprise activities in the US are $58 billion in overall revenues, with $14 billion of overall revenues attributable to maritime related activities, and $7 billion of maritime revenues attributable to ocean enterprise activities (NOAA’s Ocean Enterprise Study, 2016). Total employment in the ocean enterprise is estimated to be between 223,000 and 268,000 employees in the U.S.

We aim to develop students who will not only possess knowledge and skills based on scientific evidence and practice, but who will be able to retrieve, analyze, assess and model large datasets (Big Data). The program’s goals are to produce graduates that can solve problems and analyze data to critically assess the complex interactions among forcings and processes in the ocean and who can effectively communicate in a variety of settings. Following our departmental motto of “Teaching through research”, we aligned the proposed educational tracks with the research themes that highlight the department’s expertise. The program’s three tracks will allow each student to gain specific knowledge and skills to address problems in ocean observing system technology and data (OOST Track), marine ecosystem science and health assessment (MESH Track), and ocean climate modeling for the past (e.g. Paleoclimate), present (e.g. El Nino) and future (e.g. Climate Change) (OC Track).

A&M System Funding or Other Financial Implications:

Texas A&M University certifies that the proposed new degree program meets the criteria under the 19 Texas Administrative Code, Section 5.45 in regards to need, quality, financial and faculty resources, standards and costs. New costs during the first five years will not exceed $2 million.
Members, Board of Regents  
The Texas A&M University System

Subject: Approval of a New Bachelor of Science Degree Program with a major in Oceanography, and Authorization to Request Approval from the Texas Higher Education Coordinating Board

I recommend adoption of the following minute order:

“The Board of Regents of The Texas A&M University System approves the establishment of a new degree program at Texas A&M University leading to a Bachelor of Science Degree Program with a major in Oceanography.

The Board also authorizes submission of Texas A&M University’s new degree program request to the Texas Higher Education Coordinating Board for approval and hereby certifies that all applicable criteria of the Coordinating Board have been met.”

Respectfully submitted,

Michael K. Young, President/CEO

(One or two spaces)
Approval Recommended:
(Three spaces)

John Sharp  
Chancellor

Ray Bonilla  
General Counsel

Billy Hamilton  
Executive Vice Chancellor and  
Chief Financial Officer

James R. Hallmark, Ph.D.  
Vice Chancellor for Academic Affairs
Texas A&M University
Bachelor of Science
with a major in Oceanography
(CIP 40.0607.0002)

Program Review Outline

BACKGROUND & PROGRAM DESCRIPTION

Administrative Unit: College of Geosciences; Department of Oceanography

The new Bachelor of Science degree with a major in Oceanography will be administered by the Department of Oceanography. We currently offer a thesis based MS degree in Oceanography, a PhD in Oceanography and have recently developed a non-thesis professional Master of Ocean Science and Technology. A natural extension of our current strength in educating future ocean researchers and professional ocean scientists is to offer a Bachelor of Science degree in Oceanography.

The exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms) is driving an increase in the need and opportunities for well-trained ocean scientists.

Educational Objectives

The BS in Oceanography provides students with an interdisciplinary education and training in one of three areas of ocean science: Ocean Observing Systems and Technology (OOST), Ocean Climate (OC) and Marine Ecosystem Science and Health (MESH). All students will gain skill in handling, evaluating and analyzing large datasets.

The BS in Oceanography curriculum:
- Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields;
- Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and
- Emphasizes critical thinking and problem solving skills.

Learning Outcomes

We aim to develop students who will not only possess knowledge and skills based on scientific evidence and practice, but who will be able to retrieve, analyze, assess and model large datasets (Big Data). The program’s goals are to produce graduates that can solve problems and analyze data to critically assess the complex interactions among forcings and processes in the ocean and who can effectively communicate in a variety of settings. Following our departmental motto of “Teaching through research”, we aligned the proposed educational tracks with the research themes that highlight the department’s expertise. The program’s three tracks will allow each student to gain specific knowledge and skills to address problems in ocean observing system technology and data (OOST Track), marine ecosystem science and health
assessment (MESH Track), and ocean climate modeling for the past (e.g. Paleoclimate), present (e.g. El Nino) and future (e.g. Climate Change) (OC Track).

- Graduates will possess an interdisciplinary understanding of the oceans and the processes affecting them.
- Graduates will be able to think critically about individual ocean issues and propose solutions
- Graduates will be capable of interpreting and using data from multiple sources
- Graduates will be capable of communicating effectively with other scientists, policy-makers and the public.

**Curriculum Requirements**

<table>
<thead>
<tr>
<th>Category</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td>General Education Core Curriculum</td>
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<tr>
<td>Required Courses</td>
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<tr>
<td>Degree Concentration</td>
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<tr>
<td>Prescribed Electives</td>
<td>10</td>
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<tr>
<td>Documented Training</td>
<td>0</td>
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<tr>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL DEGREE HOURS</strong></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

The proposed implementation date is Fall 2017.

I. NEED

A. Employment Opportunities

The National Oceanic and Atmospheric Administration (NOAA), through the U.S. Integrated Ocean Observing System (IOOS), recently (February 2016) released “The Ocean Enterprise Study” ([http://www.ioos.noaa.gov/ioos_in_action/ocean_enterprise_study.html](http://www.ioos.noaa.gov/ioos_in_action/ocean_enterprise_study.html)). This report is an attempt to determine the extent of the U.S. private sector, commercial activity in support of ocean measurement, observation and forecasting and the sale of ocean information to underpin safety, economic and environmental benefits. Some findings contained in the report include:

- Estimates of revenues for businesses that have some ocean enterprise activities in the US are $58 billion in overall revenues, with $14 billion of overall revenues attributable to maritime related activities, and $7 billion of maritime revenues attributable to ocean enterprise activities:
- Total employment in the ocean enterprise is estimated to be between 223,000 and 268,000 employees in the U.S.
- The business outlook for the ocean enterprise is one of optimism, with many organizations reporting they will be developing new products and finding new users for ocean observation data. The potential for new business for existing firms, and for opportunities for new arrivals is vast as expanding infrastructure needs and the need for new applications using ocean observation data become magnified in conjunction with the growth and demand from the sectors the ocean enterprise directly underpins.

B. Projected Enrollment

Enrollment is projected to grow to reach somewhere between 130 majors (the number enrolled in the Bachelor of Science degree in Environmental Geosciences) and 900 majors (the number enrolled in the Bachelor of Science degree in Coastal Carolina University which increased from 600 to 900 majors from 2010 to 2014). We are hoping to reach between 150 and 200 majors within the first five years.

C. Existing State Programs
Texas is ranked third in numbers of jobs in the Marine Science and Technology industry. However, the provision of education and training in Ocean Sciences and Technology does not match other coastal states such as South Carolina, New Jersey and California. The development and growth of the ocean enterprise produces a need for trained ocean scientists, a need that is currently overlooked by educational institutions in Texas.

There are three existing undergraduate marine programs in the state of Texas. One is at the University of Texas where the College of Natural Sciences offers a B.S. degree in Marine and Freshwater Biology, which includes many courses offered by the Department of Marine Science. This is not an encompassing oceanography program for undergraduates. The others are the BS in Marine Biology offered by the Marine Biology Department on the TAMU Galveston campus and the BS in Marine Science offered by the Marine Science department on the TAMU Galveston campus. The marine biology degree is not an encompassing oceanography degree. The strengths of Marine Science program and the new program proposed here will complement one another rather than compete with one another. Faculty on the Galveston campus support this proposal for a BS in Oceanography to be offered through the department of Oceanography (see attached letter of support).

II. QUALITY & RESOURCES

A. Faculty
The Department currently has 25 faculty members in College Station, with two additional faculty members joining the department in Summer 2016. All faculty members have a Ph.D in Oceanography or related science discipline.

B. Program Administration
The program will be administered by the Department of Oceanography. Day-to-day management of the program will be led by the Head of Department of the Department of Oceanography.

C. Other Personnel
The program will be supported by the 4 administrative staff and the Graduate Advisor within the Department of Oceanography. Specialist staff are available to support IT, communications and engagement, assessment, and recruitment in the Dean's office of the College of Geosciences.

D. Supplies, Materials
Adequate supplies and materials are in place. Adequate supplies for teaching are available within the Department and College of Geosciences. There are clear procedures and resources available for requesting additional materials and supplies to support teaching if needs arise.

E. Library
The Department of Oceanography is located 2 minute walk from the Evans Library, the main library of the 5 on the College Station campus. In addition, the digital library offers access to ebooks and journals via the university Howdy portal both on and off campus. We will work with Mr. Rusty Kimball, the Oceanography librarian, to ensure that needs continue to be met in Oceanography. The current Oceanography collection is 11,432 books and 659 serials (i.e. journals and book series) and continues to grow.

F. Equipment, Facilities
The Department is well equipped to provide this program. Facilities include the O&M Building in College Station, the Geocemical and Environmental Research Group (GERG) facility in College Station, and the new Ocean and Coastal Studies Building (completed in 2010) and associated facilities (marina and sea life center) in Galveston. Substantial resources have been invested into the development of new
facilities at GERM, including the recent purchase of a pair of Slocum gliders, which are remotely operated vehicles (ROV) used to make measurements from the ocean while being controlled from the shore. Students in the proposed program will gain experience with state-of-the-art technologies and tools used in the Ocean Sciences by researchers who use the tools on a daily basis.

G. Accreditation
The program does not seek national accreditation. Texas A&M University is fully accredited by the Southern Association of Colleges and Schools Commission on Colleges.

III. NEW 5 YEAR COSTS & FUNDING SOURCES
Costs for the proposed degree are minimal as instruction can be met with existing resources. The new course and the additional teaching of existing courses needed for this program will be accomplished with the addition of new faculty arriving in the summer of 2016. It is projected that the program will not require any new faculty or other resources for the first five years.

Texas A&M University certifies that the proposed new degree program meets the criteria under the 19 Texas Administrative Code, Section 5.45 in regards to need, quality, financial and faculty resources, standards and costs. New costs during the first five years will not exceed $2 million.

<table>
<thead>
<tr>
<th>NEW FIVE-YEAR COSTS</th>
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<td>Program Administration</td>
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<td>Library &amp; IT Resources</td>
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<td>Equipment, Facilities</td>
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<td>Fees ($1675.69 per FTSE)</td>
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Keep this Program Review Outline to a maximum of 4 pages, using the pagination format included.
Certification Form for New Bachelor's and Master's Programs
Texas Higher Education Coordinating Board

Directions: An institution shall use this form to request a new bachelor's or master's degree program that meets all criteria for automatic approval in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.44: (a) The program has institutional and governing board approval; (b) the program complies with the Standards for Bachelor's and Master's Programs; (c) adequate funds are available to cover the costs of the new program; (d) new costs during the first five years of the program will not exceed $2 million; (e) the program is a non-engineering program (i.e., not classified under CIP code 14); and (f) the program will be offered by a university or health-related institution.

If a new bachelor's or master's program does not meet the criteria above, an institution must submit a request using the Form for Requesting a New Bachelor's and Master's Degree Program.

Information: Contact the Division of Academic Affairs and Research at 512/427-6200 for more information.

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Administrative Information

1. Institution: Texas A&M University

2. Program Name: Show how the program would appear on the Coordinating Board's program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting; Bachelor of Arts in Interdisciplinary Studies with 4-8 ESL Generalist Certification). **Bachelor of Science degree with a major in Oceanography**

3. Proposed CIP Code: 40.0607.0002

4. Number of Required Semester Credit Hours (SCHs) (*If the number of SCHs exceeds 120 for a bachelor's program, the institution must request a waiver documenting the compelling academic reason for requiring more SCHs.*): 120 SCHs

5. Administrative Unit: Identify where the program would fit within the organizational structure of the university (e.g., The Department of Electrical Engineering within the College of Engineering). **The Department of Oceanography in the College of Geosciences**

6. Delivery Mode: Identify how and where the program would be delivered, e.g. on-campus face-to-face, online, off-campus, interactive videoconferencing, hybrid, etc. **On-campus face-to-face**

7. Implementation Date: Report the first semester and year that students would enter the program. **Fall 2017**

8. Contact Person: Provide contact information for the person who can answer specific questions about the program.

   Name: Shari Yvon-Lewis
   Title: Professor and Assistant Department Head
   E-mail: syvon-lewis@tamu.edu
Signature Page

I hereby certify that all of the following criteria have been met in accordance with the procedures outlined in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.44:

(a) The program has institutional approval.

(b) The program complies with the *Standards for Bachelor’s and Master’s Programs*.

(c) Adequate funds are available to cover the costs of the new program.

(d) New costs during the first five years of the program will not exceed $2 million.

(e) The program is a non-engineering program (i.e., not classified under CIP code 14).

(f) The program will be offered by a university or health-related institution.

I understand that the Coordinating Board will update the program inventory for the institution if no objections to the proposed program are received during the 30-day public comment period.

____________________________________________________  __________________________
Chief Executive Officer                                      Date

I hereby certify that the Board of Regents has approved this program.

Date of Board of Regents approval: ____________________________

____________________________________________________  __________________________
Board of Regents (or Designee)                                Date
Proposal for Bachelor's and Master's Degrees
Program Information

Background Information

The new Bachelor of Science degree with a major in Oceanography will be administered by the Department of Oceanography. We currently offer a thesis based MS degree in Oceanography, a PhD in Oceanography and have recently developed a non-thesis professional Master of Ocean Science and Technology. A natural extension of our current strength in educating future ocean researchers and professional ocean scientists is to offer a Bachelor of Science degree in Oceanography. This new program will help support both the Land-Grant and Sea-Grant missions of Texas A&M University, as this new degree is tailored to providing skills for the new oceanography related jobs as well as skills that are transferrable to a wide array of technical careers.

The exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms) is driving an increase in the need and opportunities for well-trained ocean scientists. The BS in Oceanography provides students with an interdisciplinary education and training in one of three areas of ocean science: Ocean Observing Systems and Technology (OOST), Ocean Climate (OC) and Marine Ecosystem Science and Health (MESH). All students will gain skill in handling, evaluating and analyzing large datasets.

The BS in Oceanography curriculum: 1) Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields; 2) Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and 3) Emphasizes critical thinking and problem solving skills.

There are three existing undergraduate marine programs in the state of Texas. One is at the University of Texas where the College of Natural Sciences offers a B.S. degree in Marine and Freshwater Biology, which includes many courses offered by the Department of Marine Science. This is not an encompassing oceanography program for undergraduates. The others are the BS in Marine Biology offered by the Marine Biology Department on the TAMU Galveston campus and the BS in Marine Science offered by the Marine Science department on the TAMU Galveston campus. The marine biology degree is not an encompassing oceanography degree. The strengths of the Marine Science program at TAMUG and the new program proposed here will complement one another rather than compete with one another. Faculty on the Galveston campus support this proposal for a BS in Oceanography to be offered through the department of Oceanography (see attached letter of support).

I. Need

NEEDS ASSESSMENT

A. Job Market Need – Provide short- and long-term evidence of the need for graduates in the job market.

The National Oceanic and Atmospheric Administration (NOAA), through the U.S. Integrated Ocean Observing System (IOOS), recently (February 2016) released “The Ocean Enterprise Study” (http://www.ioos.noaa.gov/ioos_in_action/ocean_enterprise_study.html). This report is an attempt to determine the extent of the U.S. private sector, commercial activity in
support of ocean measurement, observation and forecasting and the sale of ocean information to underpin safety, economic and environmental benefits. Some interesting findings contained in the report include:

- Estimates of revenues for businesses that have some ocean enterprise activities in the US are $58 billion in overall revenues, with $14 billion of overall revenues attributable to maritime related activities, and $7 billion of maritime revenues attributable to ocean enterprise activities:
- Total employment in the ocean enterprise is estimated to be between 223,000 and 268,000 employees in the U.S.
- The business outlook for the ocean enterprise is one of optimism, with many organizations reporting they will be developing new products and finding new users for ocean observation data. The potential for new business for existing firms, and for opportunities for new arrivals is vast as expanding infrastructure needs and the need for new applications using ocean observation data become magnified in conjunction with the growth and demand from the sectors the ocean enterprise directly underpins.

There is a growing need for trained ocean science and technology professionals, both in the public (e.g. integrated global ocean observing systems) and private sectors (e.g. energy and transportation industries). These needs are both on the short and long term. A series of trends are leading to an expansion of opportunities in this sector, including the exploration and exploitation of energy resources in deeper waters offshore (e.g. Gulf of Mexico and the Arctic Ocean), the continued growth of human populations along the coast, and growing efforts to predict and mitigate coastal hazards (e.g. hurricanes, tsunami, oil spills, and harmful algal blooms). Perhaps the greatest opportunity will come from the growth of ocean observing systems, integrated systems designed to collect, store and deliver ocean data. In the United States, the Integrated Coastal and Ocean Observation System Act of 2009 (33 U.S.C §3601-3610) legislates for the establishment of such a system, at an estimated 15-year cost of $54.2 billion dollars from a variety of public and private sector sources (Interagency Ocean Observation committee: Independent Cost Estimate, 2012). The construction, maintenance and operation of these systems will provide countless opportunities for professionals for decades to come. Based on the societal benefits proposed by NOAA (National Oceanic and Atmospheric Administration), there will be careers for our graduates in the field of severe weather prediction, forecasting hazards, improving search and rescue success, marine operations, homeland security applications, monitoring water quality, predicting threats to human health, oil spill response, and climate change research. Examples of recent career openings in the Ocean sciences and Technology field are listed in Appendix 1.

At the state level, Texas is ranked third in numbers of jobs in the Marine Science and Technology industry (Barrow et al. 2005). However, the provision of education and training in Ocean Science and Technology does not match other coastal states such as South Carolina, New Jersey, Washington and California. By offering a BS in Oceanography, we will cater to an expanding job market nationally and a need within Texas to ensure that the State remains competitive in industries associated with emerging fields within Ocean Science.

At present, oceanography education and training in the United States is focused on producing Ph.D. scientists suited to research and academic settings. Through this new program, Texas A&M University will provide access to an undergraduate degree that will provide new graduates with the skills to take advantage of this growing market and enter into the workforce well-prepared for jobs in these growing new sectors.
References Cited


B. Student Demand – Provide short- and long-term evidence of demand for the program.

The most recent data (from 2012) shows that there are currently 340,000 geoscientists employed in the United States and it is expected that 48% of these workers will be of retirement age over the next decade (Wilson, 2014). Consequently, there will be a severe shortage of geoscientists over the next few decades and therefore career opportunities for students graduating with a BS in Oceanography.

Examples of recent career openings requiring a BS in Oceanography or a related marine field are listed in Appendix 1. Since there are no other BS programs in Oceanography in Texas, there is no other Texas Institution to compare with. The BS in Marine Science at TAMU Galveston is the closest comparison in Texas, however that degree program is currently being revised, so the enrollment trends may change. For Coastal Carolina University, enrollment in Marine Science went from ~600 students to ~900 students from 2010 to 2014. A geosciences program here at TAMU grew to ~130 majors in a few years.

With the projected growth in Oceanography related fields and the lack of programs in Texas to accommodate the need for providing graduates with the skills needed for those jobs, we are well-positioned to fill that gap with this new BS degree in Oceanography.

C. Enrollment Projections – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. (Include majors only and consider attrition and graduation.)

Texas A&M University is growing its enrollment every year, providing residents of Texas with a strong education and skills for future job markets. This new program will capitalize on that growth and help support both the Land-Grant and Sea-Grant missions of the university with this new degree tailored to providing skills for the new oceanography related jobs as well as skills that are transferrable to a wide array of technical careers.

Enrollment in this program is projected to grow to reach somewhere between 130 majors (the number enrolled in the Bachelor of Science degree in Environmental Geosciences) and 900 majors (the number enrolled in the Bachelor of Science degree in Coastal Carolina University which increased from 600 to 900 majors from 2010 to 2014). We are hoping to reach between 150 and 200 majors within the first five years.

We will take advantage of the College of Geosciences strong recruiting efforts in community colleges and high schools. Efforts have been focused on institutions with larger numbers of students from underrepresented groups to try to increase enrollment from these groups in other areas of the geosciences. The new BS degree in Oceanography will be part of these recruiting efforts once it is approved.

Retention efforts include engaging the students from the beginning with field and research experiences. The program is designed to engage students from the first year with a field
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Bachelor's and Master's Degrees
Page 4

experience in the first year and the fourth year. We have included professional
development in the curriculum through our communication courses (OCNG 203 and OCNG
303) to help students connect with their future job opportunities and give them the skills to
successfully compete for these new ocean related jobs.

Estimated Cumulative Headcount and Full-Time Student Equivalent (FTSE)
Enrollment for the First Five Years of the Proposed Program

<table>
<thead>
<tr>
<th>Bachelors Degree</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Returning from Previous Yr</td>
<td></td>
<td></td>
<td>18</td>
<td>53</td>
<td>90</td>
<td>120</td>
</tr>
<tr>
<td>New Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>10</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Transfer</td>
<td>10</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Total # of Students</td>
<td>20</td>
<td>58</td>
<td>103</td>
<td>150</td>
<td>190</td>
<td></td>
</tr>
<tr>
<td>FTSE</td>
<td></td>
<td>20</td>
<td>57</td>
<td>102</td>
<td>150</td>
<td>191</td>
</tr>
<tr>
<td>Attrition Following Current Year</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Graduates During Current Year</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>25</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

II. Quality

A. Degree Requirements – Use this table to show the degree requirements of the program.
(Modify the table as needed; if necessary, replicate the table for more than one option.)

For bachelor's degree:

<table>
<thead>
<tr>
<th>Category</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core Curriculum (bachelor's degree only)</td>
<td>62</td>
</tr>
<tr>
<td>Required Courses</td>
<td>33</td>
</tr>
<tr>
<td>Track Electives</td>
<td>18</td>
</tr>
<tr>
<td>Prescribed Electives</td>
<td>7</td>
</tr>
<tr>
<td>Other (Specify, e.g., internships, clinical work)</td>
<td></td>
</tr>
<tr>
<td>TOTAL SCH Requirement</td>
<td>120</td>
</tr>
</tbody>
</table>

Note: A Bachelor degree should not exceed 120 Semester Credit Hours (SCH) per Board rule 5.44
(a) (3). Those that exceed 120 SCH must provide detailed documentation describing the
compelling academic reason for the number of required hours, such as programmatic accreditation
requirements, statutory requirements, or licensure/certification requirements that cannot be met
without exceeding the 120-hour limit.
B. **Curriculum** – Use these tables to identify the required courses and prescribed electives of the program. Note with an asterisk (*) courses that would be added if the program is approved. (Add and delete rows as needed. If applicable, replicate the tables for different tracks/options.)

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 251</td>
<td>Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 252</td>
<td>Oceanography Lab</td>
<td>1</td>
</tr>
<tr>
<td>OCNG 203*</td>
<td>Communicating Oceanography Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>OCNG 303*</td>
<td>Professional Communication in Ocean Science</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 410</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 420</td>
<td>Biological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 430</td>
<td>Geological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 440</td>
<td>Chemical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 443</td>
<td>Oceanographic Field and Laboratory Methods</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 481</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>GEOS 470</td>
<td>Data Analysis and Methods in Geoscience</td>
<td>3</td>
</tr>
<tr>
<td>MATH 151</td>
<td>Engineering Math I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 152</td>
<td>Engineering Math II</td>
<td>4</td>
</tr>
<tr>
<td>STAT 211</td>
<td>Principles of Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>Fundamental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Fundamental Chemistry Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Fundamental Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 111</td>
<td>Introductory Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>Introductory Biology II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 218</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Optics</td>
<td>4</td>
</tr>
</tbody>
</table>

All students in the program are required to take one of the following:

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 456</td>
<td>Matlab Programming for Ocean Science</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 469</td>
<td>Python for Geoscientists</td>
<td>3</td>
</tr>
</tbody>
</table>

**Ocean Observing System Track**

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 212</td>
<td>Principles of Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 404</td>
<td>Ocean Observing Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 350</td>
<td>Marine Pollution</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 456</td>
<td>MatLab Programming Lab for Ocean Science</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 469</td>
<td>Python for Geoscience</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 201</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 203</td>
<td>Weather Forecasting Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ATMO 251</td>
<td>Weather Observations and Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>
## Marine Ecosystem Science and Health Track

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 227</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 237</td>
<td>Organic Chemistry I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 228</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 238</td>
<td>Organic Chemistry II Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 350</td>
<td>Marine Pollution</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 425</td>
<td>Microbial Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 456</td>
<td>MatLab Programming Lab for Ocean Science</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 469</td>
<td>Python for Geoscience</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 453</td>
<td>Mid ocean Ridge and Hydrothermal Vents</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 363</td>
<td>Introduction to Atmospheric Chemistry and Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Molecular Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Genes, Ecology and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 351</td>
<td>Fundamentals of Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Quantitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 362</td>
<td>Descriptive Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 383</td>
<td>Chemistry of Environmental Pollution</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 415</td>
<td>Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>GENE 302</td>
<td>Principles of Genetics</td>
<td>3</td>
</tr>
</tbody>
</table>

## Ocean Climate Track

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Required Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 251</td>
<td>Engineering Math III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 308</td>
<td>Differential Equations</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix and Number</th>
<th>Prescribed Elective Courses</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCNG 451</td>
<td>Mathematical Modeling of Ocean Climate</td>
<td>4</td>
</tr>
<tr>
<td>OCNG 456</td>
<td>MatLab Programming Lab for Ocean Science</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 469</td>
<td>Python for Geoscience</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 201</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 203</td>
<td>Weather Forecasting Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ATMO 324</td>
<td>Physical and Regional Climatology</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 441</td>
<td>Satellite Meteorology and Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 442</td>
<td>Past Climates</td>
<td>3</td>
</tr>
<tr>
<td>MATH 304</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 221</td>
<td>Optics and Thermal Physics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 212</td>
<td>Principles of Statistics II</td>
<td>3</td>
</tr>
</tbody>
</table>
### C. Faculty

1. Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. *(Add and delete rows as needed.)*

<table>
<thead>
<tr>
<th>Name of Core Faculty and Faculty Rank</th>
<th>Highest Degree and Awarding Institution</th>
<th>Courses Assigned in Program</th>
<th>% Time Assigned to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Dr. Deborah Thomas Professor, Department Head</em></td>
<td>Ph.D., Geological Sciences, University of North Carolina, Chapel Hill</td>
<td>OCNG 430 Geological Oceanography, GEOS 101 First Year Seminar</td>
<td>75%</td>
</tr>
<tr>
<td>Dr. Shari-Yvon Lewis Professor, Assistant Department Head</td>
<td>Ph.D., Marine and Atmospheric Chemistry, Rosenstiel School of Marine and Atmospheric Science, University of Miami</td>
<td>OCNG 440 Chemical Oceanography, OCNG 203 Communicating Oceanography Laboratory, OCNG 350 Marine Pollution</td>
<td>75%</td>
</tr>
<tr>
<td>Dr. Steven DiMarco Professor</td>
<td>Ph.D. Physics, University of Dallas</td>
<td>GEOS 470 Data Analysis and Methods in Geoscience, OCNG 404 Ocean Observing Systems</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Jessica Fitzsimmons Assistant Professor</td>
<td>Ph.D. Chemical Oceanography, Massachusetts Institute of Technology/Woods Hole Oceanography Institution joint program</td>
<td>OCNG 303 Professional Communication in Oceanography, OCNG 453 Mid ocean Ridge and Hydrothermal Vents</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Lisa Campbell Professor</td>
<td>Ph.D. Biological Oceanography, SUNY Stony Brook, New York.</td>
<td>OCNG 420 Biological Oceanography</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Gerardo Gold Professor</td>
<td>Sc. D., Marine Sciences, Center for Research and Advanced Studies, Merida, Mexico</td>
<td>OCNG 443 Oceanographic Field and Laboratory Methods, OCNG 461 Advanced Oceanographic Data Analysis and Communication</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Daniel Thornton Associate Professor</td>
<td>Ph.D., Biology, Queen Mary, University of London, UK</td>
<td>OCNG 420 Biological Oceanography, OCNG 425 Microbial Oceanography</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Achim Stössel, Associate Professor</td>
<td>Ph.D., Physical Oceanography, University of Hamburg</td>
<td>OCNG 410 Physical Oceanography</td>
<td>50%</td>
</tr>
<tr>
<td>Dr. Robert Hetland Professor</td>
<td>Ph.D. Physical Oceanography, Florida State University</td>
<td>OCNG 469 Python for Geoscientists</td>
<td>25%</td>
</tr>
</tbody>
</table>
2. What impact will the new program have on current programs in regards to faculty resources?
   a. How will the new program possibly impact other departments?
      For example: A new Engineering degree might require additional sections or
courses in Mathematics and Physics.

All students in this program will need to take MATH 151 and 152; CHEM 101/111 and
CHEM 102/112; PHYS 218 and PHYS 208; BIOL 111 and BIOL 112. They also must
take the university required English, communication, history and other liberal arts
courses.

Each track has other required courses depending on the track, and most of these are in a
fundamental science or math. For the OOST track, STAT 212 is required. For MESH,
CHEM 227/237 and CHEM 228/238 are required. For OC, MATH 251 and MATH 308
are required

   b. How will the program impact current teaching assignments in department?
      For example: If new courses will be developed and taught by current faculty what
courses will they no longer teach and how will those courses be taught? If
additional faculty will be hired to cover these courses please include that as a new
cost for the program.

The BS degree in Oceanography will rely on faculty who are already members of the
Department of Oceanography and students will take courses that are already offered by
the Department of Oceanography, with the exception of one course that is being created
specifically for the program (OCNG 303 Professional Communication in Oceanography).
The projected increase in student numbers will be absorbed by our current teaching
capacity and facilities. There are two new faculty joining the depart in Summer 2016.
These new faculty members will help with any increases in teaching that go beyond our
current capacity.

D. Students – Currently enrolled students that change from another program to the proposed
program only result in a shift in funding through tuition and fees rather than a new source of
funding. Therefore, describe general recruitment efforts and admission requirements
designed to bring new students into the proposed program.
We will take advantage of the College of Geosciences strong recruiting efforts in community colleges and high schools. Efforts have been focused on institutions with larger numbers of students from underrepresented groups to try to increase enrollment from these groups in other areas of the geosciences. The recruiting coordinator has developed attractive Pathways Programs that lay out paths to each of the College’s undergraduate degree programs ensuring that the prospective transfer students are taking the necessary fundamental coursework to keep them on track to degree. The new BS degree in Oceanography will be part of these recruiting efforts once it is approved.

We will also actively recruit from high schools involved in the National Ocean Sciences Bowl where students are familiar with oceanography but have not had the opportunity to major or in it at TAMU before. We will take advantage of Aggieland Saturday to recruit for the new major, as well. We have been increasing our outreach activities for younger children with activities for Boy Scouts and Girl Scouts to make them more aware of the issues surrounding our oceans. This will likely translate into more demand for the major as those children reach college age.

E. Library – Provide the library director’s assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program. Please provide only information about library resources required for this program. Do not include information regarding library services or access that is already available unless these are being developed as a direct result of the proposed program.

Mr. Rusty Kimball is the Oceanography librarian. Due to the graduate Oceanography programs we already offer, we work with him to ensure that needs continue to be met in Ocean Sciences and Technology. The current Oceanography collection is 11,432 books and 659 serials (i.e. journals and book series) and continues to grow. This should be sufficient to ensure resources for the new BS degree in Oceanography.

F. Facilities and Equipment – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for additional cost of facility and equipment improvements/additions.

Texas A&M University is the flagship university of the Texas A&M System, with a student population of over 50,000. The Department of Oceanography benefits from the resources of a major public university holding Land Grant, Sea Grant, and Space Grant status. The Department’s faculty are primarily in the O&M Building on the campus of Texas A&M University (College Station). There are adequate classrooms and laboratories to support the new BS degree program, including projected increases in student numbers. The classrooms are fitted out with regularly updated information technology, including the hardware and software to enable classes to be taught between the College Station and Galveston campuses. In addition, the Department of Oceanography has close ties, (including joint appointments) with other units within the College of Geosciences directly relevant to the BS degree, such as the International Ocean Discovery Program (IODP) and the Geochemical and Environmental Research Group (GERG). GERG is the College’s unit that builds and operates ocean observing systems, including the Texas Automated Buoy System and our Slocum Glider fleet. We are currently integrating the activities of GERG into teaching and learning with the Department of Oceanography, through investment in facilities and ocean observing tools at GERG ($1,445,000) and a reorganization of the Department of Oceanography. For example, Dr. Steven DiMarco is both the Team Leader of Ocean Observing at GERG and a full Professor in the
New Program Request Form for
Bachelor’s and Master’s Degrees
Page 10

Department of Oceanography who will teach required courses in the new BS degree program.

The Department recently completed a $150,000 renovation in the O&M Building to construct a new ‘Ocean Observing Educational Facility’. The state-of-the-art facility allows students to work with operating ocean observing instruments collecting data in the Gulf of Mexico, providing students with ‘hands on’ high impact learning experiences. This facility will be used to pilot our growing fleet of Slocum Gliders, which are remotely operated vehicles making measurements in the ocean for research and teaching applications.

G. IT Resources – Describe additional computing equipment and resources will be required and estimated cost.

The College of Geosciences has centralized IT services and currently supports all the IT needs for all of the departments in the College including the Department of Oceanography’s IT needs for the three graduate degrees we currently offer (Master of Ocean Science and Technology, MS in Oceanography and PhD in Oceanography). The IT needs for the new BS degree in Oceanography will be covered using the existing resources.

H. Supplies and Materials – Describe additional supplies and materials that will be required if these are items other than normal operating expenses.

Minimal additional supplies or materials are requested to start this new program. There are adequate mechanisms in place to obtain any materials needed for increases in enrollment in any of the required courses.

I. Accreditation – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation.

Oceanography does not have an accreditation organization or agency and therefore we will not be seeking accreditation specific for the BS in Oceanography. Texas A&M University is fully accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACS-COC).

J. Evaluation – Describe the evaluation process that will be used to assess the quality and effectiveness of the new degree program.

There are rigorous procedures for program review at Texas A&M University and these will be applied to the new BS program to ensure that it is being taught to meet its objectives and that the students achieve the defined learning outcomes of the degree and the individual courses on their degree plans. Annual program assessment will form the backbone of our assessment efforts with reviews conducted in the capstone course (OCNG 461). Program assessment is managed by the Office of Institutional Assessment (OIA) directed by Dr. Ryan McLawhon. Programs undergo continuous assessment and the assessment process is documented using WEAVEonline, a web based tool for documenting and storing assessment information. Results of the annual assessment will be analyzed to produce an annual action plan, which will be used to improve the effectiveness of the BS degree in Oceanography.

In addition, The Texas Administrative Code Texas Degree requires that all academic programs are reviewed on a 7 year cycle. The Academic Program Review (APR) is coordinated by the Office of the Provost and Executive Vice president for Academic
III. Costs and Funding

Five-Year Costs and Funding Sources - Use this table to show five-year costs and sources of funding for the program.

On the attached forms, provide estimates of new costs to the institution related to the proposed program and provide information regarding sources of the funding that would defray those costs. Use the Program Funding Estimation Tool found on the Coordinating Board web site (www.thecb.state.tx.us/newprograms) and attach a saved copy of the completed Excel spreadsheet to your application.

There are no new costs associated with this degree program. The BS degree in Oceanography will rely on faculty who are already members of the Department of Oceanography and students will take courses that are already offered by the Department of Oceanography, with the exception of one course that is being created specifically for the program (OCNG 303 Professional Communication in Oceanography). The projected increase in student numbers will be absorbed by our current teaching capacity and facilities. Existing funds from the department, college and university will be sufficient to meet the costs of adding this degree program. There are two new faculty joining the depart in Summer 2016. These new faculty members will help with any increases in teaching that go beyond our current capacity.

<table>
<thead>
<tr>
<th>Five-Year Costs</th>
<th>Five-Year Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>Reallocated Funds</td>
</tr>
<tr>
<td>Administration</td>
<td>$122,895</td>
</tr>
<tr>
<td>Graduate Assistants</td>
<td>$0</td>
</tr>
<tr>
<td>Clerical/Staff</td>
<td>$0</td>
</tr>
<tr>
<td>Other Personnel</td>
<td>$0</td>
</tr>
<tr>
<td>Facilities</td>
<td>Statutory Tuition</td>
</tr>
<tr>
<td>Equipment</td>
<td>$0</td>
</tr>
<tr>
<td>IT Resources</td>
<td>Designated Tuition</td>
</tr>
<tr>
<td>Supplies and Materials</td>
<td>Graduate Tuition Above</td>
</tr>
<tr>
<td>Library</td>
<td>Statutory ($50) Tuition</td>
</tr>
<tr>
<td>Other</td>
<td>Course Fees</td>
</tr>
<tr>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Total Costs</td>
<td>Anticipated New Formula</td>
</tr>
<tr>
<td></td>
<td>Funding</td>
</tr>
<tr>
<td></td>
<td>Other</td>
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<tr>
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<td>Total Funding</td>
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<td>$130,395</td>
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<td>$122,895</td>
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<td>$2,746,134</td>
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<td>$439,114</td>
</tr>
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<td></td>
<td>$0</td>
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<tr>
<td></td>
<td>$1,721,827</td>
</tr>
<tr>
<td></td>
<td>$5,800,620</td>
</tr>
</tbody>
</table>

1 Please use the "Program Funding Estimation Tool" found on the CB website to correctly estimate state funding.
1. Report costs for new faculty hires, graduate assistants, and technical support personnel. For new faculty, prorate individual salaries as a percentage of the time assigned to the program. If existing faculty will contribute to program, include costs necessary to maintain existing programs (e.g., cost of adjunct to cover courses previously taught by faculty who would teach in new program).

2. Specify other costs here (e.g., administrative costs, travel).

3. Indicate formula funding for students new to the institution because of the program; formula funding should be included only for years three through five of the program and should reflect enrollment projections for years three through five.

4. Report other sources of funding here. In-hand grants, "likely" future grants, and designated tuition and fees can be included.
### Costs of the Institution of the Program/Administrative Change

**Format:**
- **Column Headers:** Year (5th, 4th, 3rd, 2nd, 1st), Cost Category, Cost Sub-Category, Total
- **Row Headers:** Other (Identity), Facilities, Equipment, IT Resources, Library, Supplies & Materials, Reallocated (New), Reallocated (Reassigned), New, New, New, Program Administration, New, New, Existing Staff, Faculty Salaries, Other (Identity)

**Note:** Use this chart to indicate the dollar costs to the institution that are anticipated from the change requested.
<table>
<thead>
<tr>
<th>Funding Category</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTS</td>
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<td></td>
</tr>
<tr>
<td>Other</td>
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<tr>
<td>Course fees</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Tuition</td>
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</tr>
<tr>
<td>Designated Tuition</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Statutory Tuition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Other Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Federal Funding (in-hand only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Reallocation of Existing Resources</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Other State Funding</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I. Formula Income</td>
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<td></td>
</tr>
</tbody>
</table>

Note: Use the chart to indicate the dollar amounts anticipated from various sources to cover any and all new costs to the institution as a result of the proposed doctoral program. Use the Non-Formula Sources of Funding form to specify as completely as possible each non-general revenue source.
<table>
<thead>
<tr>
<th>Category</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Other</td>
<td>Funding</td>
</tr>
<tr>
<td>IV. Federal</td>
<td>Funding</td>
</tr>
<tr>
<td>III. Reallocation</td>
<td>of</td>
</tr>
<tr>
<td>II. Other</td>
<td>State</td>
</tr>
<tr>
<td>I. Reallocating</td>
<td>Resources</td>
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<td>#</td>
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<td>#</td>
<td>#</td>
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<tr>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

**Non-Formula Sources of Funding**

Note: Use this form to specify as completely as possible each of the non-formula funding sources for the dollar amounts listed on the attached sheet.
Explanations: ANTICIPATED SOURCES OF FUNDING: EXPLANATORY NOTES AND EXAMPLES

I. Formula Income
   A. The first two years of any new program should not draw upon formula income to pay for the program.
   B. For each of Years 3 through 5, enter the smaller of:
      1. the new formula income you estimate the program would generate, based on projected enrollments and formula funding rates; or
      2. half of the estimated program cost for that year.
   C. Because enrollments are uncertain and programs need institutional support during their start-up phase, it is the Coordinating Board's policy to require institutions to demonstrate that they can provide:
      1. sufficient funds to support all the costs of the proposed program for the first two years (when no new formula funding will be generated); and
      2. half of the costs of the new program during years three through five.
   D. When estimating new formula income, institutions should take into account the fact that students switching programs do not generate additional formula funding to the institution. For example, if a new master's program has ten students, but five of them switched into the program from existing master's programs at the institution, only five of the students will generate new formula income to help defray the costs of the program.

II. Other State Funding
    This category could include special item funding appropriated by the legislature, or other sources of funding from the state that do not include formula-generated funds (e.g., HEAF, PUF, etc.).

III. Reallocation of Existing Resources:
    If faculty in existing, previously budgeted positions is to be partially or wholly reallocated to the new program, you should explain in the text of your proposal how the institution will fulfill the current teaching obligations of those faculty and include any faculty replacement costs as program costs in the budget.

IV. Federal Funding
    Only federal monies from grants or other sources currently in hand may be included. Do not include federal funding sought but not secured. If anticipated federal funding is obtained, at that time it can be substituted for funds designated in other funding categories. Make note within the text of the proposal of any anticipated federal funding.

V. Other Funding
    This category could include Auxiliary Enterprises, special endowment income, or other extramural funding.
Appendix 1
Selection of Recent Job Openings for which graduates with a BS in
Oceanography would be qualified

TITLE
NOAA Data Analyst - Oceanography / Tidal*

DESCRIPTION
VACANCY ANNOUNCEMENT

Advanced Resource Technologies, Inc. (ARTI) is currently recruiting for a Data Analyst in support of a contract with the National Oceanic and Atmospheric Administration (NOAA) at our Silver Spring, MD location. Position is full-time, exempt. Start date is immediate upon selection with 2 weeks notice to current employer.

SUMMARY
The Data Analyst provides tidal data processing support to NOAA's Center for Operational Oceanographic Products and Services (CO-OPS), Oceanographic Division (OD). The Data Analyst will be responsible for a region of water level stations and Great Lakes NWLON stations. Assigned NWLON stations support priority Photogrammetry-Hydrographic and PORTSÂ® CO-OPS programs.

PRINCIPAL DUTIES AND RESPONSIBILITIES
Specific duties and responsibilities include but are not limited to:
• Monthly processing of the data following standard operating procedures and compiling statistics using spreadsheet and database programs for the assigned stations within the first two weeks of the month
• Routinely checking the Hydro Hot List and priority processing completed first on Mondays
• Analyzing the data for validity and consistency, referring questionable data to the supervisor or a CO-OPS oceanographer
• Performing analysis and investigating data problems associated with the assigned stations
• Producing charts, graphics, and other graphical representations of water level and associated data
• Maintaining accurate records of data processed and analyzed
• Presenting analyzed data to CO-OPS oceanographers for verification and acceptance into official database
• Performing other special projects or duties as assigned

REQ NUMBER
SCI-16-00002

FULL-TIME/PART-TIME
Full-Time

POSITION
• B.S. degree in oceanography, meteorology, hydrology, physics, physical
REQUIREMENTS

Science, geophysics, civil engineering, etc preferred. Two (2) years of related education that include at least 12 semester hours in any combination of courses in oceanography, meteorology, physics, physical science, geophysics, etc. and two (2) years of experience required. Four (4) years of specialized experience in oceanography, meteorology, physics, physical science, geophysics, civil engineering, etc. can be substituted for education requirement.

• Position requires knowledge of oceanographic (tidal) principles, theories, and practices sufficient to process and analyze data are highly desirable. Any undergraduate courses and/or work experiences related to oceanography, marine engineering, meteorology, and related subjects are desirable.
• Must be proficient in using a desktop computer and MS Office Suite in analyzing and processing data. Database and query experience required.
• Experience with Any Geospatial or Geographical Information System (GIS) knowledge or experience is desirable.
• Experience with commercial GIS software packages such as Mapinfo, Arcview etc., is desirable.
• Experience with spreadsheets or statistical software is required.
• Experience with MATLAB is desirable
• Knowledge of databases and Structured Query Language (SQL) queries to databases is desired.
• Excellent written and verbal communication skills required.
• Ability to work independently and in a team environment.

Mandatory Requirement: Applicants selected for this position may be subject to a Government Security Investigation and must meet eligibility for access to classified information.

If you are interested in this position, please submit your resume and salary requirements. Our preferred method for receiving your resume is to apply on-line on our homepage or fax.

Advanced Resource Technologies, Inc. (ARTI)
Apply On-line at: http://www.team-arti.com/jobopening.htm

Attn: Recruiter, SCI-16-00002
1555 King Street, Suite #400
Alexandria, VA 22314
Fax: (703) 682-4823

ARTI is an Equal Opportunity Affirmative Action Employer

LOCATION
Silver Spring, MD

CURRENT CLEARANCE LEVEL

CLEARANCE LEVEL
Public Trust
EXEMPT/NON-EXEMPT
Exempt

EOE STATEMENT
We are an equal employment opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, gender, national origin, disability status, protected veteran status or any other characteristic protected by law.

THIS POSITION IS CURRENTLY ACCEPTING APPLICATIONS.
Junior, Assistant, or Associate Specialist – Marine Science

Job #IPF00680

- Office of Research - Marine Science Institute

RECRUITMENT PERIOD

Open date: February 19th, 2016
Last review date: March 11th, 2016
Applications received after this date will be reviewed by the search committee if the position has not yet been filled.
Final date: June 30th, 2016
Applications will continue to be accepted until this date, but those received after the review date will only be considered if the position has not yet been filled.

DESCRIPTION

Junior, Assistant, or Associate Specialist – Marine Science
(1 position - Single hire recruitment)

The Marine Science Institute at the University of California, Santa Barbara, seeks a specialist to work with on the launch of an initiative to use marine science to generate actionable environmental change in the oceans. Incumbent will assist and/or provide considerable input in regard to the following: Responsibilities will include coordinating ocean-related public outreach activities, organizing scientific working groups to study ocean issues, and working with marine contractors/service providers to carry forward projects generated by working groups.

Applicant will be required to interface with other research scientists that will be recruited to study ocean issues and these working groups. The purpose of the research working group will be to generate new science and review existing science to execute new solutions for ocean problems. Advanced expertise in marine science will be required to assemble, lead and synthesize result from such groups. Outputs from the group will represent new research products.

Minimum requirements: Baccalaureate in marine science or biological science.

Additional qualifications: Master’s degree (or equivalent) is required should the applicant be offered the position at the Assistant or Associate level.

Desirable requirements include experience in science outreach and communication, demonstrated achievement in peer-review publishing, and experience conducting marine science in international settings.

Salary and benefits will depend on academic background and experience. 100% time appointment for one year from start date with possibility for second year renewal.

Electronic applications (including a CV and names only of 3 references) should be sent to:
For full consideration, please apply by 3/11/16. Position will be open until filled. Seeking applicant that can begin in the position in 2016.

The department is especially interested in candidates who can contribute to the diversity and excellence of the academic community through research, teaching and service. The University of California is an Equal Opportunity/Affirmative Action Employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability status, protected veteran status, or any other characteristic protected by law

**JOB LOCATION**

Isla Vista, CA

**REQUIREMENTS**

**DOCUMENTS**

- Curriculum Vitae - Your most recently updated C.V.

**REFERENCES**

3 references required (contact information only)
Marine Laboratory Technician

About the Job

Marine Laboratory Technician

Performs engineering and sciences support functions that may include constructing, testing, calibrating, and modifying devices, materials, and/or planning and processing activities. Interprets and assesses project requirements; coordinates logistics and technical equipment to support requirements of engineering teams or scientists conducting research and/or experiments. Provide overall coordination and support between engineering/scientists, procurement, logistics and other teams. May conduct safety activities and training.

Essential Duties and Responsibilities:

Responsible for assisting in operation, maintenance, safety, and cleanliness of vessel laboratory operations.

Responsibilities also include the oversight of retrograde cargo packing, labeling, and documentation, the packaging/documentation of all hazardous and radioactive waste, and the lab safety of all personnel on the cruise.

Responsible for coordinating with the Marine Science Technician, Senior on the scheduling of training and proficiency examinations in the areas of hazardous waste management, radioactive waste management, IATA, and optional emergency medical training.

Position will be located on a research vessel. The standard work schedule for this position is 84 hours per week. (Monday through Sunday, 12 hours per day.)

Education:
Bachelor degree is required. Degree in Marine Biology, Biology, Oceanography or Natural Science.

Certifications and/or Licensing Requirements: None

Training: None Required.

Experience: Minimum of two years experience in a university or industrial laboratory setting. Knowledge of one or more of the methods involved in various disciplines, such as Geology and Geophysics, Oceanography, Chemistry, Biology and Biological/Chemical Oceanography is required. Operational knowledge of Windows XP and MS Office Products is required. Previous experience working in Antarctica.

Physical and/or Other Specific Requirements: Deployment is required in this position. The individual in the position must successfully complete the physical and dental examinations, and psychological examination for winter-over positions, as required by the NSF for deploying to Antarctica. Failure to meet these requirements may result in withdrawal of employment offer or other employment action. Complies with applicable USAP/ASC safety, environmental, health, and waste management policies and procedures. U.S. citizenship or permanent residency required.

Contracts for: Mid April-Mid May & 2016-2017
The University of Miami is considered among the top tier institutions of higher education in the U.S. for its academic excellence, superior medical care, and cutting-edge research. At the U, we are committed to attracting a talented workforce to support our common purpose of transforming lives through teaching, research, and service. Through our values of Diversity, Integrity, Responsibility, Excellence, Compassion, Creativity and Teamwork (DIRECCT) we strive to create an environment where everyone contributes in making UM a great place to work. We are one of the largest private employers in Miami-Dade County; home to more than 13,400 faculty and staff from all over the world.

The Cooperative Institute for Marine and Atmospheric Studies (CIMAS) of the University of Miami, Rosenstiel School of Marine and Atmospheric Science (RSMAS), invites applications for a Research Associate I position in Ecosystem Assessment. The position is concerned with coordinating ecological programs and will involve close collaboration with scientists at RSMAS and the NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML).

The incumbent will participate on a variety of research cruises and be responsible for biological and environmental data collection, as well as post-cruise data entry and analysis. The incumbent must be willing and physically able to occasionally spend up to 60 days per year at sea on oceanographic research vessels assisting in the collection of scientific data. Such work requires a degree of physical mobility and places certain stresses on the applicant. He/she must be able to lift and move items of up to 50 lbs. The incumbent will also be responsible for statistical analyses of ecosystem datasets, including for pre-defined ecosystem indicators. The incumbent should have experience with statistical analyses and be capable of using a variety of software packages for data analysis and plotting, database applications. The incumbent should have experience conducting ecological field work in coastal and marine environments.

Qualifications:
• Bachelor’s degree in marine science, biology, ecology, or related fields.
• Necessary skills should include basic knowledge of biological oceanographic data collection and analysis, statistical analysis of environmental data and knowledge in at least one graphical/statistical software package (e.g. R, MatLab, SAS).
• Excellent written and oral communication skills are required to communicate with a diverse group of people in large collaborative projects.

Apply online at: www.miami.edu/careers. Curriculum Vitae and the contact information for three people who can provide letters of recommendation are required.

Apply online. Position #: P100012635.
Research Associate I

Below you will find the details for the position including any supplementary documentation and questions you should review before applying for the opening. To apply for the position, please click the Apply for this Job link/button. Iowa State University provides reasonable accommodations to applicants and employees with disabilities. Applicants with questions about access or requiring a reasonable accommodation for any part of the application or hiring process should email employment@iastate.edu or call (515) 294-4800 or Toll Free: (877) 477-7485. TTY users are welcome to use the Iowa Relay Service number by dialing 7-1-1 or (800) 735-2942.

If you wish to apply to an Affiliate or Post Doc position, please follow the application directions found in the posting.

If you would like to bookmark this position for later review, click on the Bookmark this Posting link. If you would like to print a copy of this position for your records, click on the Print Preview link.

Bookmark this Posting | Print Preview | Apply for this Job

Position Details

Classification Information
University Title  Research Associate I - 3166
Pay Grade  30
Salary  Commensurate with qualifications
Base of Employment  P - P&S
Job Category  Professional and Scientific
Pay Frequency  Monthly
Posting Details
Posting Number  60109P
Working Title  Research Associate I
Advertised Employing Department  Ecology, Evolution, and Organismic Biology (EEOBA)
Appointment Type  Professional & Scientific - Term
Proposed Start Date  As soon as possible
Proposed End Date or Length of Term  12/31/2016
Number of Months Employed Per Year  12
Full or Part Time  Full-Time
Summary of Duties and Responsibilities
The College of Agriculture and Life Sciences is currently seeking a Research Associate I for the Ecology, Evolution, and Organismal Biology department.

This position is responsible for supervising employees in the Biology Laboratory and for coordinating and supervising field sampling activities of the ISU Limnology Laboratory. The employee is responsible for overseeing daily operations of the Biology Laboratory and field activities, including coordinating and executing field sampling and biological analyses, training and supervising temporary student employees and merit employees in field and biological techniques, modifying standard operating procedures and developing Quality Assurance/Quality Control (QA/QC) protocols for field sampling and biological analyses using established methods, ensuring migration of field observational and plankton data into
the database, and assisting with data generation and analysis for limnological research projects. The employee assists with field data collection and sampling on a regular basis. The employee assists with maintenance and repair of field and laboratory equipment and instrumentation.

The successful candidate will possess a strong ability in aquatic laboratory science, computer and internet proficiency, good communication and writing skills, and skill in interpersonal interactions.

Required Education and Experience
Bachelor’s degree and related experience.

Supplemental Required Education and Experience
Preferred Education and Experience
Bachelor’s degree in the aquatic or biological sciences.
Experience in performing laboratory work in limnology or marine ecology.
Additional years of database interface and management or related experience.
Location (if other than Ames)
Additional Information
All accrued vacation must be taken during the term of this appointment. Unused vacation will be forfeited upon resignation or termination from ISU.

Department Contact Name    Christopher Filstrup
Department Contact Phone    515-294-6363
Department Contact Email    filstrup@iastate.edu
Department/Unit Website
Application Instructions
To apply for this position, please click on “Apply to this Job” and complete the Employment Application. Please be prepared to enter or attach the following:

1) Resume/Curriculum Vitae
2) Letter of Application/Cover Letter
3) Contact Information for Three References

If you have questions regarding this application process, please email employment@iastate.edu or call 515-294-4800 or Toll Free: 1-877-477-7485.
Career Opportunities

Job Title: Research Associate III
Pay Grade: r6
Pay Band Min / Max: 
Position Number: P100009507
Department / Hospital: RSMAS-CIMAS

The University of Miami is home to some of the brightest minds in the world. At the U, we are committed to attracting and retaining a talented workforce to support our common purpose of transforming lives through teaching, research, and service. We are leaders in the area of education, scholarship, intercollegiate athletics and service. Come join our team!

The Cooperative Institute for Marine and Atmospheric Studies (CIMAS) of the University of Miami invites applicants for a Research Associate III position in Marine Biology and Fisheries. We seek a research associate to join our group and work as a laboratory technician in the Marine Mammal Molecular Genetics laboratory. The incumbent’s primary focus will be collecting DNA sequence and microsatellite data from a variety of marine mammal populations and species.

Candidates for this position should have:
(1) Bachelor’s degree.
(2) At least five plus years of relevant work related experience including evidence of research accomplishments leading to the dissemination of new information.
(3) Demonstrated experience with molecular biological techniques, particularly DNA extractions and DNA sequencing or microsatellite genotyping methodologies.
(4) The ability and desire to work as part of a collaborative team.
(5) Excellent problem solving and critical thinking skills, good organizational skills and the ability to plan daily duties.

The position will be located at the NOAA Fisheries Southeast Fisheries Science Center Protected Resources and Biodiversity Division located in Lafayette, LA. Start date is flexible, but ideally around no later than February 1, 2016.

Apply online at: www.miami.edu/careers. Curriculum Vitae and the contact information for three people who can provide letters of recommendation are required.

Apply online. Position #: P100009507.

The University of Miami offers competitive salaries and a comprehensive benefits package including medical and dental benefits, tuition remission, vacation, paid holidays and much more. The University of Miami is an Equal Opportunity/Affirmative Action Employer. Follow us on Twitter @univmiamijobs

The University of Miami is an Equal Opportunity Employer - Females/Minorities/Protected Veterans/Individuals with Disabilities are encouraged to apply. Applicants and employees are protected from discrimination based on certain categories protected by Federal law. Click here for additional information.
Marine Science Educator
Project Oceanology - Groton, CT

Part-time
Seeking highly responsible individual that will teach students, plan lessons and oversee the safety of marine science education programs, which include shoreline, lab, and research vessel lessons. Duties include academic year educational programs primarily consisting of instructing classes for students (grades 5 through 12) during school year programs and for the general public (age 6 or older) during summer and winter programs. The position requires the use of independent judgment, initiative, maturity, observation, and communication skills.
This position is based at Project Oceanology in Groton, CT.

EXAMPLES OF ESSENTIAL FUNCTIONS:
Coordinates with other Project Oceanology staff to customize lessons and engages participants during instructional and transition times.

Teaches oceanographic content and research techniques, and relates marine science topics to people having a wide range of interests, ages, and educational backgrounds.

Prepares course materials such as syllabi and handouts, lectures and lesson plans. Plans, evaluates, and revises curricula, course content, course materials and methods of instructions, as needed.

Modifies and/or develops activities to enhance academic year and summer season lesson options, especially as they relate to national and state Department of Education curriculum frameworks.

Provides a safe, supportive and friendly environment throughout Project Oceanology programs and facilities.

Knowledge of, and broad interest in, oceans, including coastal ecosystems, fisheries resources, human interactions and management issues.

Knowledge and methods for curriculum and training design, teaching and instruction for groups and individuals, and the measurement of training effects.

Knowledge of media production, communication, and dissemination techniques and methods. This includes alternative ways to inform and teach via written, oral, and visual media.

Knowledge of effective supervisory principles and practices. Possess management skills required to supervise, delegate and share responsibilities.
Working knowledge of the needs of the adolescent population.

Ability to instruct others and to work with persons from diverse backgrounds, including urban youth, classes of students and with general public groups.

Ability to work as a team member and as a leader; must be outgoing, patient, energetic and enthusiastic; must have good communication and interpersonal skills. Fluency in Spanish is highly desirable.

Ability to be available to work a flexible schedule that includes early mornings, daytime, evenings, and weekends.

Must possess a BA or BS degree. Biology and oceanography background and/or course work is desirable. Master's degree, or work towards a Master's degree, is preferred. Connecticut Teacher's Certificate is preferred. Boating and teaching experience and experience with the use of standard oceanographic equipment is preferred.

American Heart Association or American Red Cross First Aid, American Heart Association or American
Red Cross CPR, and CT Safe Boating License (or Coast Guard license) are required. Lifeguard certification, SCUBA, and Coast Guard license are preferred. State of Connecticut Health form is required. Subject to a mandatory random drug-testing program.

PHYSICAL DEMANDS:
Considerable physical stamina to work outdoors all day regardless of weather is required. The employee must have the ability to carry, lift and move equipment and manipulate up to 100 lbs.

Job Type: Part-time

Required experience:

- Marine Science: 2 years

30 days ago - save job
Position Announcements

Research Professional in Water Quality Analysis

Title: Research Professional III

Job Description Summary: Environmental data analysis and modeling of aquatic ecosystem metabolism

Location: Dept of Marine Sciences, University of Georgia, Athens, GA

Description, Duties, Responsibilities: Applications are invited for a research technician in the area of water quality data analysis, programming, modeling, and aquatic ecosystem ecology. The position will focus on the analysis and interpretation of water quality data (dissolved oxygen, nutrients, and chlorophyll) in order to quantify metabolism and trophic state of estuarine and shelf aquatic systems. Data to be analyzed includes DO from moorings and diurnal transects, triple oxygen isotopes from a single GA Bight shelf survey), and water quality from seasonal estuarine transects. The job will also entail results summarization, report writing and presentation of results. The successful candidate should be able to independently analyze and interpret data and results.

Education and Experience Required: Requires considerable experience in programming (e.g., matlab, R, excel). Experience with data analysis, estuarine or aquatic metabolism or water quality is desirable but not required. Bachelors of Science or Masters of Science (MS) degree with sufficient work experience required. Degrees in environmental and oceanographic sciences, statistics, or computer science may be appropriate.

Salary and benefits will be commensurate with academic background and job experience - likely within the $40 to $46k annual range.

Application End Date: review of applications will commence immediately and continue until a qualified applicant is identified.

Anticipated Start Date and Position Duration: position to start as soon as possible, hopefully by May 1, 2016. This will be a 1-yr position with possibility for a 2nd year extension depending on job performance.

Inquiries - email chuck hopkinson (choppins@uga.edu).


Refer to Posting Number: 20160462

Electronic applications must include a letter of interest and description of past experience, full CV, and names and full addresses (with phone and email) of three references.
Environmental Specialist

Job ID
2016-1054

# of Openings
1

Job Locations
US-MA-Boston

Category
Other

More information about this job:

Overview:

Our client, DONG Energy is a north European company with a focus on offshore wind. You will be part of a growing organization with over 2000 employees dedicated to developing, constructing and operating offshore wind farms. Our newly established Boston office is the next step in our company’s growth and you will have the opportunity to play a defining role in establishing our new business. Wind Power is the world’s largest developer and operator of offshore wind power, and we use our unique knowledge in all phases of our wind turbine projects. During the last 20 years, we have developed and constructed the largest portfolio of offshore wind farms in Northern Europe.

The Environmental Specialist, will be responsible for managing the permitting process on the Bay State Wind project. Bay State Wind is a utility scale offshore wind farm, located 15 miles off the coast of Martha’s Vineyard, with water depths of between 130 - 165 feet. If given approval, we plan to build an offshore wind farm which could have an installed capacity of up to 1,000MW.

As the Environmental Specialist you will be managing the onshore and offshore surveys and investigations required for permit applications and documentation to be submitted to federal agencies such as BOEM and state agencies in accordance with lease requirements and applicable legislation. With the responsibility of managing the relevant surveys and investigations you will be working closely with the relevant authorities, federal and state agencies, legal advisors and other relevant external stakeholders. In this role you will also represent DONG Energy and the Bay State Wind project towards these external stakeholders under direction of the Consents Project Manager and working closely with the US market based team.

Responsibilities:

- Managing and coordinating the input to the Site Assessment Plan (SAP), Construction and Operations Plan (COP) and the required survey plans. This includes coordination and management of specialist consultants, producing permit applications, negotiations with regulators and stakeholders, and ensuring compliance with BOEM lease and other permit conditions.
- Represent DONG Energy and/or the Bay State Wind Project at state, federal, and local government levels as well as in relation to various industry organization.
- Plan and manage negotiation with relevant local, state, and federal authorities, government agencies in relation to permit applications and plan public meetings, community consultation and stakeholder events in agreement with the Consent Project Manager.
- Build and maintain relationships with key stakeholders involved in permitting & environmental issues.
- Develop, coordinate and implement DONG Energy’s US environmental policies, and procedures, which assure compliance with federal, state, local permit and regulatory requirements.
- Maintain project environmental records in accordance with established internal DONG Energy documentation and records management procedures as well as regulatory requirements.

Qualifications:

- Previous permitting experience, REQUIRED
• Bachelor or Master's Degree e.g. within environmental science, environmental management, marine science or law
• 5 -10 years' permitting experience working on large infrastructure and multi-disciplinary projects
• Strong knowledge of environmental legislation in relation to the US market
• Previous experience working closely with the relevant authorities, regulatory agencies, legal advisors and other relevant external stakeholders will also be essential
• Ability to travel 20-40%
• Demonstrated project management skills
• Strong level of experience in the coordination and delivery of environmental work being undertaken by multi-disciplinary and multi-cultural teams
• Ability to manage and work with multi-disciplinary teams located across different time zones and geographical location
• Team player with a focus on finding both constructive and practical solutions to all kinds of challenges
• Knowledge of the environmental consultancy market and experience with contract management would be advantageous
• Excellent communication skills and proven experience and ability to speak confidently with internal and external stakeholders at various levels
Degree Evaluation

Undergraduate Required Areas: 120 hours

Major Coursework: (33 hours)
- OCNG 251/252 (4) – [section for majors attribute]
- OCNG 203 Communicating Oceanography Laboratory (1) (NEW)
- OCNG 410 Physical Oceanography (3)
- OCNG 420 Biological Oceanography (3)
- OCNG 430 Geological Oceanography (3)
- OCNG 440 Chemical Oceanography (3)
- OCNG 456 Matlab Programming for Ocean Science or OCNG 469 Python for Geoscientists (3)
- OCNG 481 Seminar (1)
- OCNG 443 Oceanographic Field and Laboratory Methods (3) (NEW)
- OCNG 461 Advanced Oceanographic Data Analysis and Communication (3)
- OCNG 303 Professional Communication in Ocean Science (3) (NEW)
- GEOS 470 Data Analysis and Methods in Geoscience (3)

Supporting Coursework: (7 hours)
- 6 hours technical electives (see attached list)
- GEOS 101 (1) – First Year Experience [for majors]

Concentration Coursework: (18 hours)
TRACK: Ocean Observing Science and Technology
- STAT 212 Principles of Statistics II (3)
- OCNG 404 Ocean Observing Systems (3)
- 12 hours from track electives:
  - OCNG 350 – Marine Pollution (3)
  - OCNG 456 – MatLab Programming Lab for Ocean Science (3)
  - OCNG 469 – Python for Geoscience (3)
  - ATMO 201 – Weather and Climate (3)*
  - ATMO 203 – Weather Forecasting Laboratory (1)*
  - ATMO 251 – Weather Observations and Analysis (3)
  - GEOG 361 - Remote Sensing in Geosciences (4)
  - STAT 407 – Principles of Sample Surveys (3)

TRACK: Marine Ecosystem Science and Health
- CHEM 227/237 – Organic Chemistry I (4)
- CHEM 228/238 – Organic Chemistry II (4)
- 10 hours from track electives:
  - OCNG 350 – Marine Pollution (3)
  - OCNG 425 – Microbial Oceanography (3)
  - OCNG 456 – MatLab Programming Lab for Ocean Science (3)
  - OCNG 469 – Python for Geoscience (3)
- OCNG 453 – Mid ocean Ridge and Hydrothermal Vents (3) (NEW)
- ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution (3)
- BIOL 213 Molecular Cell Biology (3)
- BIOL 214 – Genes, Ecology and Evolution (3)
- BIOL 351 Fundamentals of Microbiology (4)
- CHEM 315 Quantitative Analysis (3)
- CHEM 362 – Descriptive Inorganic Chemistry (3)
- CHEM 383 Chemistry of Environmental Pollution (3)
- CHEM 415 Analytical Chemistry (3)
- GENE 302 – Principles of Genetics (3)

**TRACK: Ocean Climate**
- MATH 251 Engineering Math III (4)
- MATH 308 Differential Equations (4)
- 10 hours from track electives:
  - OCNG 451 – Mathematical Modeling of Ocean Climate (4)
  - OCNG 456 – MatLab Programming Lab for Ocean Science (3)
  - OCNG 469 – Python for Geoscience (3)
  - ATMO 201 – Weather and Climate (3)*
  - ATMO 203 – Weather Forecasting Laboratory (1)*
  - ATMO 324 - Physical and Regional Climatology (3)
  - ATMO 441 - Satellite Meteorology and Remote Sensing (3)
  - GEOG 442/GEOS 442 - Past Climates (3)
  - MATH 304 – Linear Algebra (3)
  - PHYS 221 – Optics and Thermal Physics (3)
  - STAT 212 - Principles of Statistics II (3)

**Communication:** Minimum 6hrs (6 hours)
- ENGL 104 Comp and Rhetoric (3)
- COMM 203 or COMM 205 (3)

**Mathematics:** Minimum 6hrs (11 hours)
- MATH 151 Engineering Math I (4)
- MATH152 Engineering Math II (4)
- STAT 211 Principles of Statistics I (3)

**Life and Physical Sciences:** Minimum 9hrs (24 hours)
- CHEM 101/111 Fundamental Chemistry (4)
- CHEM 102/112 Fundamental Chemistry II (4)
- BIOL 111 Introductory Biology I (4)
- BIOL 112 Introductory Biology II (4)
- PHYS 218 Mechanics (4)
- PHYS 208 Electricity and Optics (4)

**Language, Philosophy and Culture:** Minimum 3hrs
- 3 hours Lang, Phil, Cul [KLPC attribute]
Creative Arts: Minimum 3hrs
- 3 hours Creative arts elective [KCRA attribute]

Social and Behavioral Science: Minimum 3hrs
- 3 hours social science elective (recommend GEOG 201)

Citizenship: This is a university area and will be added automatically (12 hours):
- 6 hours in History [KHIS attribute]
- 6 hours in Political Science (POL 206 and 207)

Work Not Applied: This is a university area and will be added automatically

University Writing Req.: 2 courses min. (List the departments approved writing or communication courses – or you may use the university approved: Must have two courses with the UWRT or UCRT attributed)
- OCNG 281 Seminar in Communicating Oceanography
- OCNG 410 Physical Oceanography
- OCNG 420 Biological Oceanography
- OCNG 425 Microbial Oceanography
- OCNG 481 Seminar

Int’l & Cult Diversity: This is a university area and will be added automatically

Foreign Language: For programs that do not require a foreign language area this is the university approved foreign language area

Residence Requirement – 36hrs of 300-400 level coursework must be completed at TAMU. 12 hrs must be in major field.: List the range for the 12hr major field of study (example: COMM 300-499)
- OCNG 300-499; GEOS 470

GPR – Major: Specific courses required: Provide a list or range of courses for this area: (example – MUSC 100-499; ARTS 149; ENGL 227)
- OCNG 100-499; GEOS 470
Technical Electives

OCNG 400-499 (not used to satisfy track electives)
ATMO 201 – Weather and Climate (3) (if not used for track elective)
ATMO 203 – Weather Forecasting Laboratory (1) (if not used for track elective)
ATMO 251 – Weather Observations and Analysis (3) (if not used for track elective)
BIOL 213 Molecular Cell Biology (3) (if not used for track elective)
BIOL 214 – Genes, Ecology and Evolution (3) (if not used for track elective)
BIOL 300-499 (not used to satisfy track electives)
BICH 300-499 (not used to satisfy track electives)
CHEM 300-499 (not used to satisfy track electives)
CVEN 221 (if not used to satisfy track electives)
GENE 300-499 (not used to satisfy track electives)
GEOG 442/GEOS 442 - Past Climates (3) (if not used for track elective)
MATH 251 (if not used to satisfy track electives)
MATH 300-499 (not used to satisfy track electives)
PHYS 221 – Optics and Thermal Physics (3) (if not used for track elective)
PHYS 300-499 (not used to satisfy track electives)
OCEN 300-499 (not used to satisfy track electives)
STAT 212 - Principles of Statistics II (3) (if not used for track elective)