THINK BIG WE DO⁻

Serial Number #17-18-31

TO: President David Dooley

FROM: Mark Conley, Chairperson of the Faculty Senate

1. The attached BILL titled, Curricular Report No. 2017-18-8 from the Graduate Council to the Faculty Senate: Graduate Certificate in Science Writing and Rhetoric, is forwarded for your consideration.

2. This BILL was adopted by vote of the Faculty Senate on <u>March 22, 2018.</u>

3. After considering this bill, will you please indicate your approval or disapproval. Return the original, completing the appropriate endorsement below.

4. In accordance with Section 10, paragraph 4 of the Senate's By-Laws, this bill will become effective April 12, 2018 three weeks after Senate approval, unless: (1) specific dates for implementation are written into the bill; (2) you return it disapproved; or (3) the University Faculty petitions for a referendum.
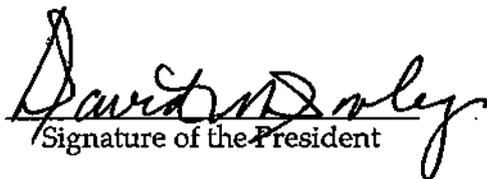

_____
Mark Conley
Chairperson of the Faculty Senate

March 22, 2018

- -

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

a. Approved _____.

b. Approved subject to Notice of the Council on Postsecondary Education _✓_.

c. Disapproved _____.

_____
Signature of the President

3·30·18
_____
(date)

THE GRADUATE SCHOOL - UNIVERSITY OF RHODE ISLAND
NEW PROGRAM REPORT FROM THE GRADUATE COUNCIL TO THE FACULTY SENATE
CURRICULAR REPORT 2017-18-8; 26 February 2018

At Meeting No. 514 held on 26 March 2018, the Graduate Council approved the attached proposal that is now submitted to the Faculty Senate.

SECTION I
ABSTRACT AND BACKGROUND INFORMATION

ABSTRACT (modified from proposal)
Scientists rely on talent in academic writing to communicate their research to specialist audiences through peer reviewed papers and conference presentations. Increasingly, scientists are expected to also communicate their science to broader audiences, including the public and policy makers. Although most scientists agree that such communication is worthwhile, efforts to do so remain limited. The National Science Foundation and Council of Graduate Schools recently called for STEM graduate programs to incorporate science communication into graduate student training, but currently no comprehensive science writing programs for graduate students exist in Rhode Island or the Northeast. However, the currently supported NSF project called 'SciWrite@URI' at the University of Rhode Island has built on existing strengths in science communication at URI and led to several broader efforts including this proposal for a Graduate Certificate.

BACKGROUND (modified from proposal)
The goal of this proposed 15-credit certificate program is to formalize instruction, training, and practice in science writing and rhetoric as a graduate certificate. This certificate program would combine coursework and an internship in science writing and rhetoric to provide graduate students with a solid foundation and skills for taking often-complex scientific results and communicating them to both specialist and non-scientific audiences, including the public and policy makers.

SECTION II
RECOMMENDATION

The Graduate Council approved the proposal to create a **Graduate Certificate in Science Writing and Rhetoric** at its Meeting No. 514 held on 26 February 2018, and forwards it to the Faculty Senate with a recommendation for approval.

NOTE: The parts of this proposal that are in black font are the original proposal, those in blue font are modifications made in February 2018 in response to the Graduate Council review and suggestions.

A Proposal for: a Graduate Certificate in Science Writing and Rhetoric

Date: 25 October 2017, 16 February 2018

A.   PROGRAM INFORMATION

A1.   Name of institution: University of Rhode Island

A2.   Name of department, division, school or college
   Department: Natural Resources Science
   College: College of the Environment and Life Sciences

A3.   Title of proposed program and Classification of Instructional Programs (CIP) code
   Program title: Graduate Certificate in Science Writing and Rhetoric
   Classification code (CIP): 23.1303

A4. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
   Initiation date: January 2018, April 2018
   First degree date: May 2018

A5.   Intended location of the program: URI Kingston Campus

A6.   Description of institutional review and approval process

	Approval Date
Department	17 Nov 2017
College	28 Nov 2017
Budget Office/Enrollment Services	19 Dec 2017
SLOAA Review	4 Dec '17, 5 Jan 2018
LOOC	15 Jan 2018
CAC/Graduate Council	29 Jan, 26 Feb 2018
Faculty Senate	
President of the University	

A7. Summary description of proposed program (not to exceed 2 pages)

Rationale

Scientists rely on talent in academic writing to communicate their research to specialist audiences through peer reviewed papers and conference presentations. Increasingly, scientists are expected to also communicate their science to broader audiences, including the public and policy makers. Doing so can engender greater trust in the sciences, leading to increased understanding and engagement. Although most scientists agree that such communication is worthwhile, efforts to do so remain limited. Other than occasional courses in proposal and manuscript writing, graduate programs in science, technology, engineering, and math (STEM) have offered limited support for graduate students in writing and communicating beyond that required within their own scientific disciplines. The National Science Foundation and Council of Graduate Schools recently called for STEM graduate programs to incorporate science communication into graduate student training, but currently no comprehensive science writing programs for graduate students exist in Rhode Island or the Northeast. However, the currently supported NSF project called 'SciWrite@URI' at the University of Rhode Island has built on existing strengths in science communication at URI and led to several broader efforts including this proposal for a Graduate Certificate.

Advanced training to improve writing competency for graduate students needs to be a multi-pronged, multi-disciplinary, broad initiative at URI (and everywhere else). The proposed 15 cr Certificate cannot satisfy all training needs and so this proposed Graduate Certificate in Science Writing and Rhetoric should be considered within a broader perspective. At present at URI there are several, simultaneous efforts afoot that together constitute the broad initiative that, if successful on all fronts, we all agree we need. These efforts include (a) faculty training in writing and mentoring, and (b) establishment of a Graduate Student Writing Center that would complement the current Undergraduate Writing Center. This Center would offer one-on-one mentoring in writing, peer group writing groups, workshops and boot camps, all focused on improving the writing competency of URI graduate students. (c) Writing-intensive graduate courses that require students to practice and hone their written and oral communication skills within certain genres (e.g., proposal writing for graduate students in specific fields; advanced topics courses in a given discipline that require written reviews and position papers). (d) Instructional writing courses that focus on the development of basic skills for certain populations including English Language Learners (ELL). Some of these types of courses exist at the undergraduate level (e.g., WRT 201, 332, 334) but more are needed at the graduate level.

The goal of this proposed 15 credit certificate program is to formalize instruction, training, and practice in science writing and rhetoric as a graduate certificate. ***This certificate program would combine coursework and an internship in science writing and rhetoric to provide graduate students with a solid foundation and skills for taking often-complex scientific results and communicating them to both specialist and non-scientific audiences, including the public and policy makers.*** This certificate will signal to potential employers

that the awardee of the certificate has the knowledge, skills, and technical ability to convey science in a diversity of written forms (genres) to an array of audiences, including non-scientists.

Learning Outcomes
Upon completion of the certificate program, graduate students will be able to:

(1) Employ rhetorical approaches for effectively communicating science to other scientists and to non-specialist audiences, including the public and policy makers.

(2) Prepare effective science writing pieces intended for varied audiences and using multiple genres.

(3) Cultivate habitual writing practices that lead to greater productivity and more effective science writing.

(4) Incorporate the literary elements appropriate to a genre (e.g. news stories, certain magazines and newspapers, peer discussion) to improve public engagement with and understanding of science.

Program Requirements
This certificate program will be open to currently enrolled, full-time or part-time graduate students or to professionals who hold a bachelor's degree in a science field. The program requires a total of 15 credits of coursework that, with the approval of their advisor and committee, can be applied toward their graduate degree. Students enrolled in the certificate program must complete all courses applying to the certificate with a grade B or higher.

Required courses for the certificate include WRT 533: Graduate Writing in the Life Sciences, NRS 543: Public Engagement with Science, and BES 593: Internship in Science Writing, totaling nine credits. These nine course credits train graduate students to recognize genre distinctions (e.g., academic journals with quite different audiences and conventions, or popular magazines, or newspaper articles about science topics), train them in rhetoric, and provide plenty of practice in how to take often complex scientific results and effectively and persuasively communicate them to both specialist and non-scientific audiences, something we believe benefits their writing for both academic and non-academic audiences. The BES 593 internship opportunities will be coordinated by Dr. Nancy Karraker – this course proposal was recently approved by Graduate Council and was approved by Faculty Senate on 25 Jan 2018. These internship opportunities have been a successful part of the SciWrite@URI NSF-funded program for the past two years and to date 12 graduate students have successfully completed or secured internships. Graduate students worked one-on-one with faculty to secure these internship opportunities and it worked quite well. Six additional credits of coursework are needed and can

be completed by selecting from the following supporting courses: BES: 500 Advanced Science Ethics **AND** BES 501: Advanced Science Communication; BES 533: Using Multimedia to Communicate Science; and OCG 533: Graduate Writing in Marine and Environmental Sciences. Thus, if a given graduate student is especially interested in developing "basic writing or scholarship needs" related to academic writing then they can elect to take BES 500, BES 501, and OCG 533. In contrast, taking BES 533 would broaden a student's multimedia skills. We recognize that our proposal does not include courses that are taught by representatives from all the sciences (e.g., social, behavioral, health, pharmacy). However, we firmly believe that the proposed Certificate can serve graduate students from all these sciences. The name of this certificate, "Graduate Certificate in Science Writing and Rhetoric" is meant to emphasize that the core courses (WRT 533, NRS 543) provide foundational training in rhetoric, and plenty of practice in how to take often complex scientific results and persuasively communicate them to both specialist and non-scientific audiences regardless of discipline. We hope that over the next few years other groups of scientists will propose additional courses that can be used as additional alternatives to the current selection of supporting courses for this certificate, so that we can achieve a most inclusive Graduate Certificate in Science Writing and Rhetoric.

Resources in Support

This certificate program is built from existing courses and all courses associated with the certificate are currently taught at the University of Rhode Island by currently employed faculty or are nearing Graduate Council approval with faculty committed to teach them. No additional resources will be needed to implement this certificate program. The program will be directed by Dr. Nancy Karraker, Associate Professor in the Department of Natural Resources Science, with support from Drs. Ingrid Lofgren in Nutrition and Food Science, Dr. Scott McWilliams in Natural Resources Science, and Dr. Nedra Reynolds in Writing and Rhetoric and Director of Writing Across URI.

A8. Signature of the President

David M. Dooley

A9. Person to contact during the proposal review
    Name: Nancy E. Karraker
    Title: Associate Professor
    Email: nkarraker@uri.edu **(preferred)**
    Phone: 401-874-2916

A10. List and attach any signed agreements for any cooperative arrangements made with other institutions/agencies or private companies in support of the program.

Not applicable.

B.   RATIONALE: There should be a demonstrable need for the program.
   B1.   Explain and quantify the needs addressed by this program, and present evidence that the program fulfills these needs.

Increasingly, scientists are expected to communicate their science to broader audiences, including the public and policy makers. Through direct engagement with these groups, scientists have an opportunity to foster greater trust in the sciences (Pace et al., 2010) that can lead to greater understanding and engagement in community or in broader policy-making decisions. Scientists generally agree that communicating the results of their studies with the public is a useful activity, but efforts to do so remain limited for most scientists (Varner, 2014). Other than occasional courses in proposal and manuscript writing, graduate programs in science, technology, engineering, and math (STEM) have offered limited support for graduate students in writing and communication (Kuehne et al., 2014), and available courses are rarely taught by faculty trained in these subjects. The National Science Foundation and Council of Graduate Schools recently called for STEM graduate programs to incorporate science communication into graduate student training (Linton, 2013), but there are currently no comprehensive science writing programs specific to STEM graduate students in Rhode Island or the Northeast other than that being developed at the University of Rhode Island.

Students participating in this certificate program will build a substantial knowledge and skill base through coursework that will enable them to understand how non-scientists engage with science, craft effective scientific messages that are accessible to non-scientists, and convey science to different audiences and through different media. Completion of a science writing internship with an agency or organization will give them real-world practice in communicating science to the public and/or policy makers. The combined course work and internship will reinforce the importance of communicating beyond one's scientific community and lead to greater productivity in science writing.

Based on work over the last two years, there is direct evidence that this program will fulfill the need for increasing science writing capacity in our scientists. Under a three-year National Science Foundation-funded program called SciWrite@URI, five faculty (PI Dr. Ingrid Lofgren, CoPIs Drs. Caroline Gottschalk Druschke, Nedra Reynolds, Nancy Karraker, Scott McWilliams) from four different disciplines and other collaborators,

including Dr. Kendall Moore of the Department of Journalism and Dr. Sunshine Menezes of the Metcalf Institute for Marine and Environmental Reporting, have developed and implemented new coursework, workshops, internship opportunities, and boot camps in science writing. At the end of SciWrite@URI's second year, at least 60 graduate students and 20 faculty had participated in the program and preliminary results from our standardized assessments and course evaluations indicate increasing proficiency, confidence, and effectiveness in science writing among participants.

Graduates who complete this certificate program will be able to approach potential employers with demonstrated skills in science writing and the confidence to apply those skills in their careers.

B2.   What is the economic need and workforce data related to the program?

In Rhode Island, environmental and societal problems are being tackled through innovation of new methods and application of tested solutions from STEM disciplines. Yet, communication of these efforts to the public and policy makers has often not kept apace, and the need for strengthened communication has been noted in a number of recent state-led initiatives. For example, the Resilient Rhode Island Act of 2014 (State of Rhode Island, 2014) specifies that three purposes of the Climate Change Coordinating Council are to:

- *Advance the state's understanding of the effects of climate change including, but not limited to, sea level rise, coastal and shoreline changes, severe weather events, critical infrastructure vulnerability, and ecosystem, economic, and health impacts;*
- *Identify strategies to prepare for these effects and communicate them to Rhode Islanders;*
- *Identify and facilitate opportunities to educate the public about climate change and efforts throughout state agencies and municipalities to address climate change.*

To do this, the Council is 'encouraged to utilize the expertise of **Rhode Island universities** and colleges in carrying out the duties described' including through '**community outreach, and public education**.'

These stated goals and objectives indicate a need for universities in Rhode Island to produce scientists with the skills to communicate scientific information to people of the state. Such training will be provided through the certificate program. These scientists will become the future members of groups such as: the Scientific and Technical Advisory Board of the Executive Climate Change Coordinating Council (EC4), established as a part of the Resilient Rhode Island Act, with a charter to 'assist the EC4 in communicating scientific and technical information to key user groups and the general public,' or the Rhode Island Center for Public Health Communication, which works to 'turn data into compelling information, helping Rhode Islanders to make educated health decisions.' Preparing scientists with 21st Century skills will enhance Rhode Island's workforce and economy.

B3. Provide information on jobs available as a result of successfully completing the certificate or degree: job titles, job outlook/growth, and salaries.

The table below provides information on positions recently announced through USAjobs.Gov, several science-related job boards, and other sources, and includes announcements directed at recent graduates through senior scientists. Each of these positions requires one or more degrees in a science discipline coupled with demonstrated experience in science writing for non-scientists. Salary information is given when available.

Job title *Job location*	Salary	Position description
Science Writer, Narragansett Bay Estuary Program *Providence, RI*	--	Responsible for writing Watershed Counts report that will focus on headwaters of the Narragansett Bay watershed. The report will include case studies on individuals and how they have brought about changes to protect/restore headwater streams in the watershed.
Program Manager, Public Engagement of Science Project, University of Utah *Salt Lake City, UT*	$37,000-$51,000	Involve STEM researchers, informal science educators, and community leaders to create innovative opportunities and trainings for scientists to synergistically engage with science-inattentive public audiences. Ensure that STEM researchers gain appropriate skills and academic rewards. Study how STEM researchers might shift their self-identity to science communicators and how public groups shift theirs to science learners.
Communications Coordinator, Biology Department, MA Institute of Technology *Cambridge, MA*	--	Assist with development, implementation, and maintenance of a communications plan for the department with the goal of promoting visibility and community awareness. Serve as a liaison with MIT's news and media relations teams and with communications. Contribute to developing effective communications strategies.
Science Communicator, Center for Geospatial Analytics, North Carolina State University *Raleigh, NC*	--	Supports web development, social media engagement, writing, and design, working to advance and assess activities that support and highlight the interdisciplinary research and education programs of the Center for Geospatial Analytics.

Research Ecologist, National Oceanic and Atmospheric Administration *Newport, OR*	$60,210-$93,821	Plan, conduct and evaluate ecological research dealing with the biology, ecology, and environmental drivers of the Northern California Current, especially as it pertains to interactions with the Columbia River estuary and federally managed species. Communicate results to professionals and the public using both oral communication and writing.
Public Affairs Specialist, Bureau of Reclamation *Sacramento, CA*	$92,589-$120,364	Participates in planning, directing, and accomplishing public affairs programs and public involvement program activities and services. Responds to information requests from the news media, from special interest groups, and the general public. Provides responses in written and verbal form often requiring detailed explanations on the Bureau's activities or performance in a particular situation.
Extension Director, North Carolina Sea Grant *Raleigh, NC*	--	Designs, implements, and leads a dynamic extension program that ensures a mutually beneficial interaction among NC public and private university researchers and NC inland and coastal communities. Shares program impacts across the state, region, and nation through publications, presentations, and various internal and external avenues.
Public Affairs Specialist, National Park Service *Washington, D.C.*	$112,021-$145,629	Serves as the primary agency spokesperson on high priority national-level and controversial issues. Develops complex, comprehensive communication plans and campaigns that highlight and explain NPS programs and policies.
Physical Scientist, Smithsonian Astrophysical Observatory, Smithsonian Institution *Cambridge, MA*	$131,384-$161,900	Supports space flight missions in the Solar Stellar X-ray group. Development of a data processing/analysis software pipeline, data analysis, support of commanding and instrument health assessment, organization and coordination of science output and education and public outreach.
Environmental Scientist, National Oceanic and Atmospheric Administration *Silver Spring, MD*	$131,767-$161,900	Perform assignments that involve planning, initiating, overseeing executing, evaluating, and reporting on major marine science studies that increase nationwide understanding of coastal and marine resources. Participate in the development and implementation of strategic legislative, partnership, and science communication plans.

C.   INSTITUTIONAL ROLE: The program should be clearly related to the published role and mission of the institution and be compatible with other programs and activities of the institution.

    C1.   Explain how the program is consistent with the published role and mission of the institution and how it is related to the institution's academic planning.

This proposed Graduate Certificate in Science Writing and Rhetoric fits squarely within the goals of the 2016-2021 Academic Strategic Plan (University of Rhode Island, 2016) of the University of Rhode Island, and particularly with regard to Goals 1, 2, and 3.

Goal 1 of the Strategic Plan is to 'Enhance Student Success' through strategies including learning across the curriculum and expanding opportunities for experiential learning. The foundation of the proposed certificate lies in learning across the curriculum, where graduate students trained in the sciences undertake new training in writing and rhetoric that will increase their effectiveness in communicating science to non-specialists. The required Internship in Science Writing is an experiential learning opportunity that takes students out of the classrooms and into agencies or organizations, where they may someday work, to aid those groups in communicating their scientific findings or initiatives.

Goal 2 is to 'Expand Research, Scholarship, and Creative Work' through strategies that include fostering interdisciplinary knowledge and involving graduate students in creative projects and other opportunities. Graduate students in the sciences generally focus on a single discipline that is specifically related to their research. Students completing the proposed certificate program will have gained an interdisciplinary background in science and writing and will be able to apply skills gained as a result of combining these two fields to employment in the future. The interdisciplinary nature of the certificate program will require that students extend their science, or those with whom they are working, in creative ways by development of written work that is appealing and accessible to the public. Completion of the certificate will allow graduates to pursue a broader array of positions including as scientists, science communicators, or extension and outreach staff.

Goal 3 of the Strategic Plan aims to 'Grow a Global Presence' by employing strategies that include increasing the number of domestic students engaged in international experiences and enrolling international students. Students undertaking the certificate program will be encouraged to pursue international internships that will further broaden their educational backgrounds. One student participating in the SciWrite@URI program recently completed an internship in science writing at the International Union for the Conservation of Nature in Cambridge, U.K. A number of international students have participated in workshops and courses that form the

SciWrite@URI program, and we expect to attract many international students to the proposed certificate program as it will aid non-native English speakers in strengthening their writing skills and will provide another skill set to any participating international graduate student. Enrollment of international students in this certificate program will lead to a transfer of knowledge and skills gained at University of Rhode Island back to their home countries upon completion of their degrees.

D.   INTER-INSTITUTIONAL CONSIDERATIONS: The program should be consistent with all policies of the Council on Postsecondary Education pertaining to the coordination and collaboration between public institutions of higher education.

D1. Estimate the projected impact of this program on other public higher education institutions in Rhode Island (e.g. loss of students or revenues), provide a rationale for the assumptions made in the projections, and indicate the manner in which the other public institutions were consulted in developing the projections. Have you communicated with other institutions about the development of this program and have any concerns been raised related to role, scope, and mission or duplication.

The proposed program is for a graduate certificate only and does not duplicate any other programs currently available at other institutions in Rhode Island. We anticipate that this certificate will be undertaken by enrolled graduate students and potentially science professionals nearby in RI, CT, or MA, who are seeking to build their own science writing capacity. Thus, this certificate program will not result in loss of students or revenues to other institutions in the state.

D2. Using the format prescribed by the Council on Postsecondary Education, describe provisions for transfer students (into or out of the program) at other Rhode Island public institutions of higher education. Describe any transfer agreements with independent institutions. The institution must also submit either a Joint Admissions Agreement transition plan or the reason(s) the new program is not transferable (see *Procedure for Strengthening the Articulation/Transfer Component of the Review Process for New Programs*).

Not applicable, as completion of this certificate requires that all courses be taken at the University of Rhode Island.

D3. Describe any cooperative arrangements or affiliations with other institutions in establishing this program. (Signed copies of any agreements pertaining to use of faculty, library, equipment, and facilities should be attached.)

Not applicable.

D4. How does this program align to academic programs at other institutions?

The proposed certificate program does not duplicate or compete with academic programs at other institutions in Rhode Island. However, the program would provide another opportunity for skill-building for students coming from another institution to attend graduate school at University of Rhode Island.

D5. Are recipients of this credential accepted into programs at the next degree level without issue?

For master's degree students, completion of the certificate will increase the likelihood of acceptance into a PhD program.

D6. How does this program of study interface with degree programs at the level below them?

Not applicable, as this program is open to graduate students only.

D7. If external affiliations are required, identify providing agencies. (Indicate the status of any arrangements made and append letters of agreement, if appropriate.)

Not applicable.

D8. Indicate whether the program will be available to students under the New England Board of Higher Education's (NEBHE) Regional Student Program (RSP).

Not applicable.

E.   PROGRAM: The program should meet a recognized educational need and be delivered in an appropriate mode.

    E1.   Prepare a typical curriculum display for one program cycle for each sub-major, specialty or option, including the following information:

a. **Name of courses, departments, and catalog numbers and brief descriptions for new courses, preferably as these will appear in the catalog.**

All courses indicated for the certificate program are existing courses at the University of Rhode Island, with the exception of two, as indicated below (*), which have as of 1 Feb 2018 been reviewed and approved by all necessary groups including the Faculty Senate.

Required courses:

WRT 533: Graduate Writing in the Life Sciences (3 cr). Analyzing and writing journal articles, proposals, popular press; rhetorical analysis of scientific writing.

NRS 543: Public Engagement with Science (3 cr). Theoretical and practical aspects of public engagement with science, policy, and management, with an emphasis on communication.

*BES 593: Internship in Science Writing (3 cr). Internship with an organization or agency to develop written pieces, such as news briefs or blog posts, on scientific initiatives or findings for non-scientific audiences.

Supporting Courses (Complete two of the following):

*BES 533: Using Multimedia to Communicate Science (3 cr). Provides training to students of science as well as communication to learn advanced skills in multimodal--such as radio, tv, and data visualization--storytelling.

BES 500 Advanced Science Ethics (1 cr) + BES 501 Advanced Science Communication (2 cr).
   BES 500: This course focuses on the ethics of scientific research using case studies to inform discussion on common ethical issues in science.
   BES 501: This course focuses on the process of writing and reviewing scientific manuscripts and grant proposals.

OCG 533: Graduate Writing in Marine and Environmental Sciences (3 cr). Writing and editing journal articles and abstracts; principles and practice in scientific writing.

Curriculum Map for Graduate Certificate in Science Writing and Rhetoric

The following shows the sequence of required and supporting courses to be taken within two years of a Master of Science, Master of Environmental Management, or Doctor of Philosophy degree.

Year 1					
Fall Semester		**Spring Semester**		**Summer**	
Course	**Credits**	**Course**	**Credits**	**Course**	**Credits**
WRT 533	3	NRS 543	3	BES 593*	3
Year 2					
Fall Semester		**Spring Semester**		**Total Credits**	
Course	**Credits**	**Course**	**Credits**		
Supporting course**	3	Supporting course**	3	**15**	

*New course approved by Faculty Senate on 1/25/18; **Courses include: BES 500, 501; OCG 533; BES 533 (the latter is a new course approved by Faculty Senate on 1/25/18)

b. Are there specializations and/or tracks/options/sub-plans/concentrations? If so, describe required courses in area of specialization or tracks/options/sub-plans/concentrations.

No.

c. Course distribution requirements, if any, within program.

None.

d. Total number of free electives available after specialization requirements are satisfied.

Not applicable.

e. **Total number of credits required for completion of program or for graduation. Present evidence that the program is of appropriate length as illustrated by conformity with appropriate accrediting agency standards, applicable industry standards, or other credible measure, and comparability of lengths with similar programs in the state or region.**

This proposed certificate requires satisfactory completion of 15 credits, which is the standard number of credits for graduate certificates at University of Rhode Island.

f. **Identify any courses that will be delivered or received by way of distance learning (refer to *Policy on Distance Learning, Council on Postsecondary Education, State of Rhode Island and Providence Plantations*).**

None. All courses meet face-to-face in classrooms on University of Rhode Island campuses.

g. **Is the program content guided by program-specific accreditation standards or other outside guidance?**

No.

E2. **Describe certification/licensing requirements, if any, for program graduates and the degree to which completion of the required course work meets said requirements. Indicate the agencies and timetables for graduates to meet those requirements.**

None.

E3. **Include the learning goals (what students are expected to gain, achieve, know, or demonstrate by completion of the program) and requirements for each program.**

Learning Goals
Graduate students enrolled in the certificate program will:

(1) Effectively communicate science to other scientists and non-specialist audiences through multiple genres in order to convey science for an agency or organization, and to share one's own research.

(2) Understand how the public engages with science in order to improve engagement.

E4. Demonstrate that student learning is assessed based on clear statements of learning outcomes and expectations.

Learning Outcomes and Expectations
At completion of the proposed certificate program, graduation students will be able to:

a. Employ rhetorical approaches for effectively communicating science to other scientists and to non-specialist audiences, including the public and policy makers.

b. Prepare effective science writing pieces intended for varied audiences and using multiple genres.

c. Cultivate habitual writing practices that lead to greater productivity and more effective science writing.

d. Incorporate the literary elements appropriate to a genre (e.g. news stories, certain magazines and newspapers, peer discussion) to improve public engagement with and understanding of science.

E5. Provide an assessment plan detailing what a student should know and be able to do at the end of the program and how the skills and knowledge will be assessed. Consult with the Office of Student Learning, Outcomes Assessment, and Accreditation (SLOAA) to prepare a Learning Outcomes Assessment Plan for student learning assessment. Following consultation, submit a final draft of the plan to the Chair of the Learning Outcomes Oversight Committee (LOOC) for approval by the full Learning Outcomes Oversight Committee.

See attached plan and supplemental materials.

F.   FACULTY AND STAFF: The faculty and support staff for the program should be sufficient in number and demonstrate the knowledge, skills, and other attributes necessary to the success of the program.

F1. Describe the faculty who will be assigned to the program. Indicate total full-time equivalent (FTE) positions required for the program, the proportion of program faculty who will be in tenure-track positions, and whether faculty positions will be new positions or reassignment of existing positions. What are the minimal degree level and academic/technical field requirements and certifications required for teaching in this program?

The certificate program is based on existing courses currently offered at the University of Rhode Island or in review at the Graduate Council (see course list above). There is no need for new faculty positions or reassignment of existing positions.

G.   **STUDENTS: The program should be designed to provide students with a course of study that will contribute to their intellectual, social, and economic well-being. Students selected should have the necessary potential and commitment to complete the program successfully.**

   G1. Describe the potential students for the program and the primary source of students. Indicate the extent to which the program will attract new students or will draw students from existing programs and provide a specific rationale for these assumptions. For graduate programs, indicate which undergraduate programs would be a potential source of students.

   We anticipate that this certificate will be undertaken by graduate students enrolled at University of Rhode Island and pursuing master's degrees or doctorates in health sciences, biological sciences, environmental sciences, physical sciences, engineering, or other fields, and potentially science professionals nearby in RI, CT, or MA. This assumption is based on information on students enrolled in the Graduate Certificate in Geographic Information Systems. In our experience, graduate students pursuing certificates are intending to add to their knowledge base and skill set and to make themselves more competitive for higher-level positions after graduating. Professionals who pursue certificates often have goals of updating their skill sets, re-engaging with learning, and strengthening their backgrounds perhaps for potential promotion or job change. We expect that the certificate program will draw largely from already enrolled URI graduate students.

H.   **EVALUATION: Appropriate criteria for evaluating the success of a program should be developed and used.**

   H1.   List the performance measures by which the institution plans to evaluate the program.
   Indicate the frequency of measurement and the personnel responsible for performance measurements. Describe provisions made for external evaluation, as appropriate.

   Performance Metrics:
   1. Number of students enrolled in the certificate program
   2. Number of students who complete the certificate

3. Quality of performance in internship as assessed by rubric
4. Nature of post-graduation employment of certificate recipients

Each of these metrics will be assessed annually by the Director of the Certificate Program. We do not currently anticipate a formal external evaluation of the certificate program. However, we will interact with science writing program directors at other universities to solicit input, as we have in developing the SciWrite@URI program, and will request input from internship hosts.

I. IS THE PROGRAM FINANCIALLY VIABLE?

I1. ALL PROPOSALS: Complete the Rhode Island Office of Postsecondary Commissioner Budget Form demonstrating that existing funds are sufficient for carrying out the program. The completed proposal with Budget Form requires review by the URI Budget and Financial Planning Office. Proposers shall request a Statement of No Financial Impact from the URI Budget and Financial Planning Office.

The certificate program is based on existing courses currently being taught by faculty at the University of Rhode Island. No new funding is required to administer the program. The Statement of No Financial Impact has been reviewed by Office Of Budget & Financial Planning.

References

Kuehne, L. M., Twardochleb, L. A., Fritschie,, K. J., Mims, M. C., Lawrence, D. J., Gibson, P. P., Stewart-Koster, B., and J.D. Olden. 2014. Practical science communication strategies for graduate students. *Conservation Biology* 28:1225–1235.

Linton, R. 2013. Confronting challenges in graduate education: What is the NSF role? *Grad Edge* 2:1–4.

Pace, M L., Hampton, S. E., Limburg, K. E., Bennett, E. M., Cook, E. M., Davis, A. E., Grove, J. M., Kaneshiro, K. Y., LaDeau, S. L., Likens, G. E., McKnight, D. M., Richardson, D. C., and D.L. Strayer. 2010. Communicating with the public: opportunities and rewards for individual ecologists. *Frontiers in Ecology and the Environment* 8:292–298.

State of Rhode Island. 2014. Resilient Rhode Island Act of 2014. Title 42, Chapter 6.2, Section 2. State of Rhode Island, Providence, RI.

University of Rhode Island. 2016. Academic Strategic Plan 2016-2021. Office of the Provost, University of Rhode Island, Kingston, RI. Available online at: http://web.uri.edu/academic-planning/files/academic_plan_handbook.pdf.

Varner, J. 2014. Scientific outreach: toward effective public engagement within biological science. *BioScience* 64:333–340.

THE UNIVERSITY OF RHODE ISLAND

GRADUATE SCHOOL

Graduate Program Student Learning Outcomes Assessment Plan
For Accredited and Non-Accredited Programs

The Graduate School requests that each program have clearly articulated program goals (Section I) and student learning outcomes statements linked to curriculum and course experiences/requirements (Section II). This assessment plan will help programs determine the extent to which these outcomes are successfully being met through courses and other program requirements. As part of the plan, each program will also create an assessment timeline (Section III) indicating when and how learning outcomes assessment will take place.[1][2]

Program Information:

Program:	Graduate Certificate in Science Writing
Academic year plan submitted:	2017-2018
Degree(s):	Graduate Certificate
Department Chair:	Art Gold
Program Director:	Nancy Karraker
Accredited Program:	No

I. Program Goals:　　　Broad, general statements of what it means to be an effective program in terms of student learning outcomes; what the program wants students to know and be able to do upon completion of the program. Goals should relate to the mission of the department, college, and university in which the program resides. Success in achieving Goals is evaluated directly or indirectly by measuring specific outcomes (Section II) related to the goal

Graduates of the Certificate program will:

#1	Effectively communicate science to other scientists and non-specialist audiences through multiple genres in order to convey science for an agency or organization, and to share one's own research. .
#2	Understand how the public engages with science in order to improve engagement.

Add lines as necessary

---

[1] If you have questions or need assistance, please contact: Office of Student Learning, Outcome Assessment, and Accreditation 874-9517; 874-9379

[2] Accredited programs can provide supplemental documents that indicate the answers to these questions as long as specific page references are provided in each cell of the tables in this form. When the answers are not accessible in that way, cutting and pasting will be required.
*New course to be approved by Faculty Senate on 1/25/18; **Courses include: BES 500, 501; OCG 533; BES 533 (*the latter is a new course to be approved by Faculty Senate on 1/25/18)

BUDGET AND FINANCIAL PLANNING
Adams House, 85 Upper College Road, Kingston, RI 02881 USA   p: 401.874.2509   web.uri.edu/budget

DATE: December 19, 2017

TO: Dr. Nasser H. Zawia
            Dean, Graduate School

            Andrea Rusnock
            Associate Dean, Graduate School

FROM: Linda Barrett
            Director, Budget and Financial Planning

SUBJECT: Proposal for Graduate Certificate in Science Writing

As requested in an email from Scott McWilliams, Professor of Wildlife and Conservation Biology, dated November 30, 2017, the Budget and Financial Planning Office has reviewed the budget related to the proposal for a Graduate Certificate in Science Writing.

According to the proposal, the Graduate Certificate in Science Writing will formalize instruction, training, and practice in science writing as a graduate certificate. The program would also combine coursework and an internship in science writing to provide graduate students with a solid foundation and skills for taking often complex scientific results and communicating them to both specialist and non-specific audiences, including public and policy makers.

Discussion with Enrollment Services indicated that the department should review the history of the course offerings required for the Certificate and ensure that adequate scheduling of the multiple options will be made available to students. For example, it was found that all of the courses have had very limited offerings over the past several years and some have been traditionally offered in a sequence that differs from the proposed sequence to finish in two years. Students must be able to complete the Certificate in two years by ensuring the required supporting course offerings. Examples provided are as follows:

- WRT 533 has been offered in Spring semesters nine times since 2007 with a max enrollment of seventeen (17), yet it is being proposed as a course to be completed in the Fall for the Certificate
- NRS 543 has been offered in Spring 16, 17, 18 with a max enrollment of 16. This course is required in the Spring for the Certificate
- BES 593 and BES 533 have not yet been approved
- BES 500 was first offered Fall 2017 with 22 students enrolled, it is currently scheduled to be offered again in Fall 2018

- BES 501 was first offered in Fall 2017 with 18 students enrolled, it is currently scheduled to be offered again in Fall 2018
- OCG 533 has been offered in the Spring only since 2007, but only offered 4 times with a maximum enrollment of 18 students

The sequence of offerings will need to match the proposed sequence on page 12 of the document. Doing so may actually require additional resources to accommodate the change in offerings.

One time only expenses will be required in the Office of Enrollment Services to set up coding and establish the academic structure for conferring the certificate.

It appears that this new certificate program may require additional financial resources in the Unrestricted Fund 100 budget.

Please let us know if you require any further information.

cc: Donald DeHayes   Dean Libutti
        Matt Bodah   John Kirby
        Cheryl Hinkson   Colleen Robillard
        John Humphrey   Scott McWilliams
        Nancy Neff   Joanne Lawrence

Office/BudgetImpactStatements/GradCertinsciencewriting/BudgetImpactStatementLetter.draft12.19.17

**Use this form for programs that can be pursued on a full-time basis or
through a combination of full-time and part-time attendance**

REVENUE ESTIMATES

	Year 1 20__		Year 2 20__		Year 3 20__		Year 4 20__	
Full-Time Tuition Rate: In-State	2500		3000		3500		4000	
Full-Time Tuition Rate: Out-State	3500		4000		4500		4500	
Mandatory Fees per Student								
FTE # of New Students: In-State	0		0		0		0	
FTE # of New Students: Out-State	0		0		0		0	
# of In-State FTE Students transferring in from the institution's existing programs		0		0		0		0
# of Out-State FTE Students transferring in from the institution's existing programs		0		0		0		0

Tuition and Fees	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs
First Year Students								
Tuition								
In-State								
Out-of-State								
Mandatory Fees								
Second Year Students								
Tuition								
In-State								
Out-of-State								
Mandatory Fees								
Third Year Students								
Tuition								
In-State								
Out-of-State								
Mandatory Fees								
Fourth Year Students								
Tuition								
In-State								
Out-of-State								
Mandatory Fees								
Total Tuition and Fees								
Grants								
Contracts								
Other Revenues (specify)								
Total								

Note: All of the above figures are estimates based on projections made by the institution submitting the proposal.

STANDARD ACADEMIC PROGRAM CHANGES
BUDGET FORM: Page 2 of 3

**Use this form for programs that can be pursued on a full-time basis or
through a combination of full-time and part-time attendance**

EXPENDITURE ESTIMATES

	Year 1 20__		Year 2 20__		Year 3 20__		Year 4 20__	
	Additional resources required for progam	Expenditures from current resources	Additional resources required for progam	Expenditures from current resources	Additional resources required for progam	Expenditures from current resources	Additional resources required for progam	Expenditures from current resources
Personnel Services								
Administrators								
Faculty	0		0		0		0	
Support Staff	0		0		0		0	
Others								
Fringe Benefits ____%	0		0		0		0	
Total Personnel								
Operating Expenses								
Instructional Resources	0		0		0		0	
Other (specify)	0		0		0		0	
Total Operating Expenses								
Capital								
Facilities								
Equipment								
Other								
Total Capital								
Net Student Assistance								
Assistantships								
Fellowships								
Stipends/Scholarships								
Total Student Assisstance								
Total Expenditures								

Note: All of the above figures are estimates based on projections made by the institution submitting the proposal.

STANDARD ACADEMIC PROGRAM CHANGES
BUDGET FORM: Page 3 of 3

Use this form for programs that can be pursued on a full-time basis or through a combination of full-time and part-time attendance

BUDGET SUMMARY OF COMBINED EXISTING AND NEW PROGRAM

	Year 1 20__	Year 2 20__	Year 3 20__	Year 4 20__
Total revenue				
Total expenses				
Excess/Defeciency				

BUDGET SUMMARY OF EXISTING PROGRAM ONLY

	Year 1 20__	Year 2 20__	Year 3 20__	Year 4 20__
Total revenue				
Total expenses				
Excess/Defeciency				

BUDGET SUMMARY OF NEW PROGRAM ONLY

	Year 1 20__	Year 2 20__	Year 3 20__	Year 4 20__
Total of newly generated revenue				
Total of additional resources required for program				
Excess/Defeciency				

Note: All of the above figures are estimates based on projections made by the institution submitting the proposal.

THE UNIVERSITY OF RHODE ISLAND

GRADUATE SCHOOL

Graduate Program Student Learning Outcomes Assessment Plan
For Accredited and Non-Accredited Programs

II. Curriculum Mapping: Across the top of the matrix, list courses and other requirements for the program. Order the requirements from left to right in rough chronological sequence, and append a standard description of your program requirements. Down the side, list programmatic student learning outcomes associated with goals. Using the map key below, indicate the degree to which an outcome will be taught and assessed in relevant courses and by other program requirements.

Program: Graduate Certificate in Science Writing

Map Key
I = Outcome Introduced
R = Outcome Reinforced
E = Outcome Emphasized

Student Learning Outcomes (Competencies) by Goal:	Course Numbers/Program Requirements:												
	WRT 533	NRS 543	BES 593*		Supporting course**	Supporting course**						
Goal #1 *Effectively communicate science to other scientists and non-specialist audiences through multiple genres in order to convey science for multiple audiences.* Students will know and be able to:												
1.1 Employ rhetorical approaches for effectively communicating science to other scientists and non-specialist audiences, including the public and policy makers.	I/R/E	R	R/E		R	R						
1.2 Prepare effective science writing pieces intended for varied audiences and using multiple genres.	I	R	I/R/E		R	R						
1.3 Cultivate habitual writing practices that lead to greater productivity and more effective science writing.	I/R	R	R/E		R	R						
Goal #2 *Understand how the public engages with science in order to improve engagement.* Students will know and be able to:												
2.1 Incorporate the literary elements appropriate to a genre (e.g. news stories, certain magazines and newspapers, peer discussion) to improve public engagement with and understanding of science.	I	I/R/E	R/E		R	R						

*New course to be approved by Faculty Senate on 1/25/18; **Courses include: BES 500, 501; OCG 533; BES 533 (*the latter is a new course to be approved by Faculty Senate on 1/25/18)

THE
UNIVERSITY
OF RHODE ISLAND

GRADUATE SCHOOL

Graduate Program Student Learning
Outcomes Assessment Plan
For Accredited and Non-Accredited Programs

[AT THIS TIME, CERTIFICATE PROGRAMS ARE NOT REQUIRED TO PARTICIPATE IN BIENNIAL INSTITUTIONAL ASSESSMENT REPORTING.]

III. Assessment Timeline: Indicates when and how student learning will be assessed based on clear statements of learning outcomes and expectations. Refer to the curriculum map to draft a student learning outcomes assessment timeline. Specify a 6-year plan for assessment (3 two-year periods) in which you will assess all of your program's Goals with at least one student learning outcome representing each Goal.

Academic Years	Outcome(s)	Course(s) and Other Program Requirements	Assessment Evidence (direct/indirect)	Assessment Method
	WHICH outcome(s) will you examine in each period (by number, i.e. 1.1 etc.)?	WHERE will you look for evidence of student learning (i.e., what course(s)/program requirements)? Designate for each outcome.	WHAT student work or other evidence will you examine in order to generate conclusions and recommendations? Designate for each requirement.	HOW will you look at the evidence; what means will you use to quantify the evidence? Designate for each source of evidence.
Assessment Reporting Period 1 2018-20	1.1	WRT 533	Written assignments at the beginning and end of semester	Evidence will be evaluated using the SciWrite@URI Rubric for Science Writing developed by SciWrite Team with assistance of Elaine Finan, Assistant Director, Student Learning, Outcomes, Assessment, Accreditation
Assessment Reporting Period 2 2020-22	2.1	NRS 543	Final projects at end of semester	SciWrite@URI Rubric for Academic Science Writing (see below)
Assessment Reporting Period 3 2022-24	1.2	BES 593*	Science writing pieces produced during the internship	SciWrite@URI Rubric for Academic Science Writing (see below)

*New course to be approved by Faculty Senate on 1/25/18; **Courses include: BES 500, 501; OCG 533; BES 533 (*the latter is a new course to be approved by Faculty Senate on 1/25/18)

SciWrite@URI Rubric for Academic Science Writing[*]

Rubric Criteria/Level of Achievement	1 (Does not meet expectations)	2 (Approaches expectations)	3 (Meets expectations)	Category
1. Is the text appropriate for the target audience?	The text lacks appropriate definitions or explanations of key terms and concepts, or includes jargon which makes the research/text inaccessible and unengaging to the primary intended audience.	The text includes most of the appropriate definitions or explanations of key terms and concepts with minor lapses which do not prevent the primary intended audience from accessing or engaging with the research/text.	The text consistently incorporates appropriate definitions and explanations of all key terms and concepts which makes the research/text fully comprehensible, accessible, and engaging to the primary intended audience.	Academic and Public
2. Is the text clearly organized?	The text does not adhere to the organizational conventions of the genre, and/or the writing within paragraphs is difficult to follow.	The text generally adheres to the organizational conventions of the genre, and the writing within paragraphs is easy to follow with occasional lapses.	The text adheres to the organizational conventions of the genre, and the writing within paragraphs is easy to follow.	Academic and Public
3. Is the text free of writing errors?	The text contains excessive errors which distract the reader.	The text contains some errors which do not substantially distract the reader.	The text is virtually free from obvious errors.	Academic and Public
4. Are the citations presented consistently and professionally throughout the text and in the list of references?	The text inconsistently or incorrectly applies the citation format appropriate genre.	The text includes the citation format appropriate to the genre with minor lapses or errors.	The text includes the citation format appropriate to the genre consistently and correctly.	Academic and Public
5. Is there an appropriate depth of content given genre and subject matter?	The text includes insufficient depth of content about the subject matter for the genre and primary intended audience.	The text includes essential depth of content about the subject matter for the genre and primary intended audience.	The text includes a sufficient depth of content about the subject matter for the genre and primary intended audience.	Academic and Public
6. Does the text follow the conventions of the genre including tone, vocabulary, style, and delivery?	The text does not utilize tone, vocabulary, style, and/or delivery appropriate to the genre.	The text generally utilizes tone, vocabulary, style, and delivery appropriate to the genre with occasional lapses.	The text consistently utilizes tone, vocabulary, style, and delivery appropriate to the genre.	Academic and Public
7. Does the text clearly articulate the student's research goals?	The text does not clearly articulate a research question or the goals of the project.	The text articulates a research question and/or the goals of the project but increased clarity is needed.	The text clearly and explicitly articulates a research question and/or the goals of the project.	Academic
8. Does the text make a compelling argument for the significance of the student's research within the context of the current literature?	The text does not present an adequate review of the literature and/or does not make sufficient connections between the published literature, and/or does not explicitly present an argument for the broader significance and/or scientific	The text presents a review of the literature review, but either does not place the research within the context of the published literature, or does not explicitly present an argument for the broader significance and/or scientific	The text presents a review of the literature, and demonstrates how the research fills a gap within the context of the published literature, and presents a compelling argument for the broader significance or scientific value of the research.	Academic

	value of the research.	value of the research.		
9. Does the text delineate and accomplish a specific purpose within the conventions of the rhetorical situation?	The text does not clearly delineate and/or accomplish a specific purpose within the conventions of the rhetorical situation.	The text minimally delineates and accomplishes a specific purpose within the conventions of the rhetorical situation.	The text fully delineates and clearly accomplishes a specific purpose within the conventions of the rhetorical situation.	Public
10. Does the text demonstrate its significance in a wider context, and build on the existing knowledge base by using literary elements appropriate to the genre (e.g. analogies, metaphors, similes, visual examples, case studies, etc.) to support deeper levels of understanding of complex ideas and phenomena?	The text does not explicitly demonstrate its significance in a wider context, and/or does not build on the existing knowledge base by omitting or using literary elements inappropriate to the genre to support deeper levels of understanding of complex ideas and phenomena.	The text minimally demonstrates its significance in a wider context, and generally builds on the existing knowledge base by using some literary elements appropriate to the genre to support deeper levels of understanding of complex ideas and phenomena.	The text explicitly demonstrates its significance in a wider context, and consistently builds on the existing knowledge base by using highly effective literary elements appropriate to the genre to support deeper levels of understanding of complex ideas and phenomena.	Public
11. Do the visual elements demonstrate an understanding and use of layout principles (e.g. color, graphics, fonts, and titles) to appropriately enhance the content?	The visual elements do not demonstrate an understanding or use of layout principles (e.g. color, graphics, fonts, citation style and titles) which detracts from the content.	The visual elements demonstrate a minimal understanding and use of layout principles (e.g. color, graphics, fonts, citation style and titles), and/or minimally enhances the content.	The visual elements demonstrate a thorough understanding and use of layout principles (e.g. color, graphics, fonts, citation style and titles) which appropriately enhance the content.	Academic and Public
12. Does the oral delivery of the text demonstrate an understanding and use of narrative, length, performance, and language appropriate to the situation, with a clear and compelling central message?	Oral delivery of the text does not demonstrate an understanding or use of narrative, length, performance, or language appropriate to the situation, and the central message is not clear or compelling.	Oral delivery of the text demonstrates a minimal understanding or use of narrative, length, performance, and language appropriate to the situation, and/or the central message is not consistently clear or compelling.	Oral delivery of the text demonstrates a clear understanding and use of narrative, length, performance, and language appropriate to the situation, and the central message is consistently clear and compelling.	Academic and Public
Total				

Department of Natural Resources Science
Coastal Institute
1 Greenhouse Way
Kingston, RI 02881
T 401.874-7531
srmcwilliams@uri.edu
www.nrs.uri.edu

16 November 2017

To whom it may concern:

I write this letter in support of a proposal by Nancy Karraker for a Graduate Certificate in Science Writing. As the Director of the Biological & Environmental Sciences (BES) gradu[ate] program, and a co-PI on the current NSF IGE grant supporting the SciWrite@URI effort o[f] which this graduate certificate may be a part, I enthusiastically approve of this proposed program.

As Dr. Karraker has proposed, the Graduate Certificate in Science Writing will bring toge[ther] set of existing opportunities for graduate students to build their science writing skills and formalize these opportunities as a graduate certificate. Students enrolled in the program w[ill] required to complete WRT 533 (Graduate Writing in the Life Sciences), NRS 543 (Public Engagement with Science), and BES 593 (Internship in Science Writing), and may choose additional graduate courses in science communication. Completion of this certificate durin[g] M.S. or Ph.D. program will not only aid graduate students in writing fellowship and grant proposals, theses, and dissertations more quickly and effectively, but will provide these stu[dents] with another set of tools at a time when interdisciplinary knowledge and skills are highly s[ought] after by employers.

To summarize, I strongly encourage approval of this proposed graduate certificate program brings together newly developed opportunities in science writing for URI graduate studen[ts] the certificate will be appealing to potential employers.

Sincerely yours,

Scott McWilliams, Ph.D.
Professor
Undergraduate Program in Wildlife & Conservation Biology
Director of the MSc and PhD program in Biological & Environmental Sciences
Dept. Natural Resources Science

Department of Natural Resources Science
Coastal Institute
1 Greenhouse Way
Kingston, RI 02881
T 401.874-7531
agold@uri.edu

THE
UNIVERSITY
OF RHODE ISLAND
COLLEGE OF
THE ENVIRONMENT
AND LIFE SCIENCES

17 November 2017

To Whom It May Concern:

As Chair of the Department of Natural Resources Science, I provide this letter in support of the Graduate Certificate in Science Writing being proposed by Dr. Nancy Karraker. Dr. Karraker and her colleagues received a NSF graduate student training grant (led by PI Ingrid Lofgren, Nutrition and Food Sciences) in 2015 to develop a set of opportunities in science writing, including new courses, internships, and workshops, as a part of the SciWrite@URI initiative. The proposed Graduate Certificate in Science Writing will formalize these opportunities as a certificate, and Dr. Karraker's proposal has my full support.

Increasingly scientific agencies and institutions seek employees with interdisciplinary training that extends beyond the sciences, and training in science communication is highly marketable. Dr. Karraker's proposal requires training in writing both for scientists and for non-scientists and public engagement with science, as well as an internship in science writing with an external organization. Several other options in science communication courses make up the remainder of the certificate. This certificate program will allow our graduate students to develop knowledge and skills in the classroom and then practice those skills through the external internship. I expect that this graduate certificate, if approved, will be highly sought after amongst our graduate students and there will be tangible benefits for students completing the certificate during their tenure at URI and as they seek employment upon graduation.

Sincerely,

Arthur J. Gold, Ph.D.
Chair Department of Natural Resources Science

LIBRARY IMPACT STATEMENT (New Course Proposal)
LIBRARIAN'S ASSESSMENT

Subject selectors will complete this form as requested, assessing library materials and collections as detailed below. Send one copy of the assessment to the faculty member who requested it. Send one copy of the assessment to the Collection Management Officer.

Program: Graduate Certificate in Science Writing

Department, College: Natural Resources Science. CELS

Faculty Member: Professor Nancy E. Karraker

Date returned to Faculty: November 17, 2017

Librarian Completing Assessment: Michael A. Cerbo II

Collection Management Officer: Professor Joanna Burkhardt

This new "Graduate Certificate in Science Writing" will be open to any graduate student in any science discipline. It does not have a research element, so there will be little demand for specific journals and monographic materials.

Based on this, the Library believes it does have the basic materials to support this certificate program. We are able to add whatever appropriate monographic needs might arise for instructors. Our monographic holdings in the sciences, are good and any additional materials can be garnered though our interlibrary loan office.

Access to journals in this field meets the needs of this certificate program. Our online indexes and abstracts in the sciences, as well as access to reference databases such as ScienceDirect, Web of Science, and the more general Academic Search Complete are available. We are unable to add any new journal titles except through a drop/add policy that requires the department to identify a journal title (of equal value) it would like to drop from its serials list to permit the addition of another. However, our current holdings in this field seem sufficient.

Therefore, the librarian believes that the Library can support, bibliographically, the needs of the students to be able to acquire the most out of this program.

Michael A. Cerbo II
Natural Resources Science Bibliographer
17 November 2017