Please complete this form and attach a copy of the syllabus for new courses. Forward it as an email attachment to the Secretary of the Graduate Council. A printed copy of the form with signatures should be brought to the Graduate Council Meeting. Complete the Coordinator Form on page 2, if changes in this course will affect other units.

Please indicate:  

X NEW  

MODIFY  

DELETE

Local Unit: SCS  

Graduate Council Approval Date:

Course Designation: EOS  

Course Number: 600

Full Course Title: Communication Skills for Scientists

Abbreviated Course Title (24 characters max.): Communication Skills for Scientists

Credit hours: 1  

Programs of Record: ESS M.S., CSI Ph.D.

Repeatable for Credit?  

D=Yes, not within same term  

T=Yes, within the same term  

N=Cannot be repeated for credit

Activity Code (please indicate):  

X Lecture (LEC)  

Lab (LAB)  

Recitation (RCT)  

Studio (STU)  

Internship (INT)  

Independent Study (IND)  

Seminar (SEM)

Catalog Credit Format 1: 2: 0  

Course Level: GF(500-600) X GA(700+)

Maximum Enrollment: 20  

For NEW courses, first term to be offered: F04

Prerequisites: Graduate standing

Catalog Description (35 words or less): This course helps students develop a basic set of essential skills for scientific communication and for the delivery of successful and informative oral presentations, with a focus on both scientific meetings and more general public presentations. The course also encourages students to develop and exercise scientific writing skills as applied to abstracts, manuscripts, and grants. The objectives of the course are met through a combination of activities, including practical writing assignments, training in composing grants for extramural competition, and advice in developing and delivering oral presentations.

For MODIFIED or DELETED courses as appropriate:

Last term offered:  

Previous Course Abbreviation:  

Previous number:

Description of modification:

APPROVAL SIGNATURES:

Submitted by:  

date: 

Department/Program: 

date:

email: 


**Approval from other units:**

Please list those units outside of your own who may be affected by this new, modified, or deleted course. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

<table>
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<tr>
<th>Unit:</th>
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Graduate Council approval: _______________________________ Date: ____________
Graduate Council representative: ___________________________ Date: ____________
Provost Office representative: _____________________________ Date: ____________
Course Proposal to the Graduate Council  
Presented by  
The School of Computational Sciences

1. COURSE NUMBER AND TITLE  
EOS 600 Communication Skills for Scientists  

Prerequisite: Graduate standing  

Catalog description: This course helps students develop a basic set of essential skills for scientific communication and for the delivery of successful and informative oral presentations, with a focus on both scientific meetings and more general public presentations. The course also encourages students to develop and exercise scientific writing skills as applied to abstracts, manuscripts, and grants. The objectives of the course are met through a combination of activities, including practical writing assignments, training in composing grants for extramural competition, and advice in developing and delivering oral presentations.

2. COURSE JUSTIFICATION  
Course objectives: provide the student with a set of basic information and training in oral presentations (scientific meetings and more general public) and writing (abstracts/manuscript/grants). This objective is met by a combination of activities:  
(i) training and advice in writing manuscripts/abstracts for the peer-reviewed open literature;  
(ii) training and advice in composing grants for extramural competition;  
(iii) training and advice in developing and giving oral presentation; and  
(iv) training and advice in developing and providing written and oral communications to the general public.  

Course necessity: This is a highly relevant course for SCS students. We should train scientists to conduct research, but they should also be trained as good communicators so that they can convey their research results effectively to both their scientific peers - the information, efficiently and effectively.  

Course relationship to Exiting Programs: The course will be an elective for MS in ESS and Ph.D. in CSI in the Earth Observing track initially. We will consider this as a required course for all Ph.D. in the Earth Observing track.  

Course relationship to Other Existing Courses: There is no similar course in SCS nor in the GMU community.

3. APPROVAL HISTORY

4. SCHEDULING AND PROPOSED INSTRUCTORS  
Semester of Initial Offering: Fall 2004.  

Proposed instructors: Dr. George Taylor

5. TENTATIVE SYLLABUS: See attached.
I. INTRODUCTION, COURSE OBJECTIVES AND EXPECTATIONS

Objective: provide the student with a set of basic information and training in oral presentations (scientific meetings and more general public) and writing (abstracts/manuscript/grants)

This objective is met by a combination of activities:

(i) skill and training in writing manuscripts/abstracts for the peer-reviewed open literature;
(ii) skill and training in composing grants for extramural competition;
(iii) skill and training in developing and giving oral presentation; and
(iv) skill and training in developing and providing written and oral communications to the general public.

II. WRITING MANUSCRIPTS FOR THE PEER REVIEWED, OPEN LITERATURE

This objective is met through a combination of methods. The first is to review the essential features of writing for one’s peers and the general public, including content and context. The second is to critique (individually and as a group) a series of publications with varying degrees of effectiveness. The third is to write and submit for peer review a series of short (e.g., abstract) and longer (e.g., short communication) “manuscripts”. The review comments are offered by the instructor and one’s peer group.

III. GRANT WRITING SKILLS

Grant writing is a special skill that differs from that of writing a manuscript. While there are many models that are situation-specific, the key features are the following: (i) know the agency or organizational intent of the Request for Proposal (RFP) through in depth reading and person-to-person contact; (ii) know the peer review group that passes judgement on the proposal; (iii) craft the objectives/hypotheses to be crisp, novel and succinct; (iv) offer some exploratory data that establishes the probability of the hypothesis in the eyes of the peer review panel/sponsor; and (v) assure that the methods address specifically the objectives/hypotheses, including the experimental design and statistical analysis. Each student will be required to develop a short proposal, which will be reviewed and critiqued by the instructor.

IV. ORAL PRESENTATIONS: SCIENTIFIC AND GENERAL PUBLIC
This objective is met through a combination of methods. The first is the development of a tentative outline that recognizes the nature of the presentation and the audience. The second is the further development of the outline and its presentation, using state-of-the-art, high technology applications and/or more conventional methods (function of the audience). The third is the delivery of the presentation followed by a critique by one’s peers and the professor. The last is conducted by the instructor in private and encapsulates the reviews of one’s peers and well as his/her own assessment. Each student will do at least two oral presentations and will critique each presentation of her/his fellow students. Video cameras will be used to assist in the learning process.

Course Prerequisites: None

Class Schedule: The class meets once weekly for 2 hours.

Class Format: This is a participatory class, combining a mix of lecture, class discussion, student presentations, and class evaluations. The instructor will invite individuals to help with materials, including SCS faculty and colleagues for the Department of Communications at GMU.

Course Expectations: Students are expected to (i) read selected handouts on grant writing, manuscript preparation and writing, and oral presentations, (ii) develop both written and oral presentation for submission to the instructor and peers/colleagues, and (iii) participate in class discussions and peer evaluations.

Course Grading: Grading is based on (i) submission of written materials and delivery of oral presentation (50%), (ii) re-submission of above written materials and oral presentation based on peer-reviewed comments (25%), (iii) participation in classroom discussions and peer review efforts (25%).

Course Materials: There are two course texts as follows:


A final text to assist with public speaking has yet to be selected.

Course Instructor: The principal instructor is G. Taylor, who is responsible for all class activities. The instructor is available for consultation during office hours, although it is encouraged that an appointment be arranged.

V. COURSE TOPICS

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<tr>
<th>Week</th>
<th>Topic</th>
<th>Instructor</th>
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<td>Course Objectives and Goals Principles of Written</td>
<td>G. Taylor</td>
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<td>and Oral Presentations</td>
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<td>2</td>
<td>Principles of Written and Oral Presentations</td>
<td>G. Taylor</td>
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<td>3</td>
<td>Grant and Proposal Writing Skills</td>
<td>G. Taylor</td>
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<td>Student Presentations and Peer Reviews: Grants/Proposals</td>
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<td>5</td>
<td>Manuscript Writing Skills</td>
<td>G. Taylor</td>
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<td>Student Presentations and Peer Reviews: Manuscripts Class</td>
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<td>6</td>
<td>Oral Presentation Skills</td>
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<td>Student Presentations and Peer Reviews: Oral Presentations Class</td>
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<td>Writing for and Speaking to the General Public</td>
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<td>11</td>
<td>Student Presentations and Peer Reviews: Communicating Class with the General Public</td>
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