I. Approval of the Minutes: December 9, 2020  
   Pres. Garrell  p.11

II. Opening Comments  
   Pres. Garrell

III. Granting of Degrees and Certificates to February 2021  
   Int. Provost Wrigley  App. 
   Candidates (Ph.D., M.Phil., M.A., M.S., DMA) 
   Please note: only faculty vote on this item

IV. Committee on Curriculum and Degree Requirements  
   Prof. Shafer

   A. Major Items

   1. **MS Program in Astrophysics** – new degree proposal  
      App. 2

   2. **Ph.D. Program in Comparative Literature** – bulletin changes  
      p. 14

   3. **Ph.D. Program in Earth and Environmental Studies** – 2 revised courses -  
      p. 16

   4. **MS Program in Nanoscience** – 4 new courses  
      p. 22

V. Structure Committee  
   Prof. Carey

   A. **MA Program in Biography and Memoir** – revised governance  
      p.31

   B. **MA Program in International Migration Studies** – revised governance  
      p.34

   C. **Budget Committee for GC Governance**  
      p.37

VI. University Faculty Senate – Report  
    Prof. Nolan

VII. New Business
The Graduate School and University Center
The Graduate Council
2020-2021

(Nonvoting Members)

President Dr. Robin L. Garrell
Interim Provost and Senior Vice President Dr. Julia Wrigley
Associate Provost and Dean for Academic Affairs Dr. David Olan
Dean for the Sciences Dr. Josh Brumberg
Vice President for Student Affairs Matthew Schoengood
Interim Vice President for Finance and Administration Brian Peterson
Assistant Vice President for IT Elaine Montilla
Interim Vice President for Communication and Public Affairs Wendy DeMarco Fuentes
Executive Director of Research and Sponsored Programs Edith Gonzalez
Chief Librarian (Acting) Professor Emily Drabinski

Executive Committee of Graduate Council

Professor Duncan Faherty (Chair)
Professor Peter Eckersall (Vice-Chair)
Professor Norman Carey (Acting Chair, Structure Committee)
Professor Valerie Shafer (Chair, Curriculum and Degree Committee)
Professor Martin Burke (Rep. Doctoral Faculty Policy Committee) (voting member)
Prof. Robert Nolan (UFS representative, ex officio)
Emily Drabinski (Secretary of the Council) (voting member)
Sara Ortiz (USS Delegate)
Roderick Hurley (DSC Co-Chair) (voting member)
Interim Provost – Julia Wrigley (ex officio)

Executive Officers and Directors (Voting Members)
Anthropology     Professor Jeff Maskovsky
Art History     Professor Rachel Kousser
Audiology     Professor Brett Martin
Biochemistry     Professor Sebastian Poget
Biography and Memoir     Professor Sarah Covington
Biology     Professor Cathy Savage-Dunn
Business     Professor Karl Lang
Chemistry     Professor Yolanda Small
Classics     Professor Jennifer Roberts (Acting)
Cognitive Neuroscience     Professor Tony Ro
Comparative Literature     Professor Giancarlo Lombardi
Computer Science     Professor Ping Ji
Criminal Justice     Professor Deborah Koetzle
Data Science     Professor Ping Ji
Digital Humanities     Professor Matthew K. Gold
Data Analysis and Visualization     Professor Matthew K. Gold
Earth and Environmental Sciences     Professor Monica Varsanyi
Economics     Professor Christos Giannikos
Educational Opp. Div. Programs     Professor Martin Ruck
Educational Psychology     Professor Bruce Homer
English     Professor Kandice Chuh
French     Professor Maxime Blanchard
History     Professor Joel Allen
Interdisciplinary Research     Professor Duncan Faherty
International Migration Studies     Professor Richard Ocejo
Latin American, Iberian and Latino Cultures     Professor Jane Marcus Delgado (Acting)
Liberal Studies     Professor Elizabeth Macaulay-Lewis
Linguistics     Professor Gita Martohardjono
Mathematics     Professor Ara Basmajian
Middle Eastern Studies     Professor Simon Davis
Music     Professor Norman Carey
Nanoscience     Professor Michele Vittadello
Nursing Science     Professor Juan Battle (Acting)
Philosophy     Professor Nickolas Pappas
Physics     Professor Alexios Polychronakos
Political Science     Professor Alyson Cole
Psychology     Professor Richard Bodnar
Quantitative Methods in the Social Sciences     Professor Jeremy Porter
Social Welfare     Professor Harriet Goodman
Sociology     Professor Lynn Chancer
Speech-Language-Hearing Sciences     Professor Mira Goral
Theatre and Performance     Professor Peter Eckersall
Urban Education     Professor Wendy Luttrell
Women’s and Gender Studies     Professor Dana Ain Davis

Certificate Programs (Voting Members)
Africana Studies     Professor Carla Shedd (Acting)
American Studies     Professor Eric Lott
Critical Theory     Professor John Brenkman
Demography                     Professor Neil Bennett
Film Studies                  Professor Edward Miller
Global Early Modern Studies   Professor Clare Carroll (Acting)
Interactive Technology and Pedagogy Professor Carlos Hernandez (Acting)
Medieval Studies              Professor Steve Kruger
Women’s Studies               Professor Dana Ain Davis

Chair, Doctoral Faculty Policy Committee (Voting Members)
Prof. Martin Burke

Doctoral Students Council (Voting Members)
Roderick Hurley
Sharanya Dutta
Adam Kocurek
Natacha L. Pawa (UFS Liaison)
Sara Ortiz (USS Delegate) (non-voting)

Chairs – Standing Committees of Graduate Council (Voting Members)
Executive Committee of Graduate Council
   Chair – Professor Duncan Faherty
Committee on Committees
   Chair – Cecilia Salvi
Committee on Curriculum and Degree Requirements
   Chair – Professor Valerie Shafer
Committee on Research
   Chair – Dr. Edith Gonzalez
Information Technology Committee
   Chair – Professor Matt Gold
Library Committee
   Chair – Professor TBA
Committee on Structure
   Chair – Professor Norman Carey (Acting)
Committee on Student Services
   Chair – Shu Yuan Cheng (Acting)
<table>
<thead>
<tr>
<th>Discipline</th>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>Professor Bianca Williams</td>
<td>Shibanee Sivanayagam</td>
</tr>
<tr>
<td></td>
<td>Professor Omri Elisha</td>
<td>Cassandra Barnes</td>
</tr>
<tr>
<td>Art History</td>
<td>Professor Claire Bishop</td>
<td>Flora Brandl</td>
</tr>
<tr>
<td>Audiology</td>
<td>Professor Don Vogel</td>
<td>Sabina Ciaccio</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Professor Lesley Davenport</td>
<td>Rajat Kumar Pal</td>
</tr>
<tr>
<td>Biography and Memoir</td>
<td>Professor Sara McDougall</td>
<td>Sierra Holt</td>
</tr>
<tr>
<td>Biology</td>
<td>Professor Dianne Greenfield</td>
<td>Matthew Cleere</td>
</tr>
<tr>
<td></td>
<td>Professor Anjana Saxena</td>
<td>Katherine Anderson</td>
</tr>
<tr>
<td>Business</td>
<td>Professor Joseph Onochie</td>
<td>Saghar Samimy</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Professor Brian Gibney</td>
<td>Shejla Pollozi</td>
</tr>
<tr>
<td>Classics</td>
<td>Professor John Van Sickle</td>
<td>Alessandra Migliara</td>
</tr>
<tr>
<td>Cognitive Neuroscience</td>
<td>Professor Peter Serrano</td>
<td>Daisy Reyes</td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>Professor Monica Calabritto</td>
<td>Anna Chichi</td>
</tr>
<tr>
<td></td>
<td>Professor Paola Fasoli</td>
<td>Lean Light</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Mikael Vejdemo-Johansson</td>
<td>Bertrand Ithurburn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Felix Grezes</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>Professor Candace McCoy</td>
<td>Monique Sosnowski</td>
</tr>
<tr>
<td>Digital Humanities</td>
<td>Professor Matt Gold</td>
<td>Asma Nebblett</td>
</tr>
<tr>
<td>Data Analysis and Visualization</td>
<td>Professor Matt Gold</td>
<td>Annalisa Wilde</td>
</tr>
<tr>
<td>Earth &amp; Environmental Sciences</td>
<td>Professor Kieren Howard</td>
<td>Tenn Joe Lim</td>
</tr>
</tbody>
</table>
Economics  Professor Merih Uctum  Robert Utzinger
Educational Psychology  Professor David Rindskopf  Elizabeth Che
English  Professor Peter Hitchcock  Christina Fryer-Davis
Professor Amy Wan  Cary Fitzgerald
French  Professor Sam Di Iorio  Alicen Weida
History  Professor Anne Kornhauser  Adam Kocurek
Professor Elissa Bemporad  Andrew Kotick
International Migration Studies  Professor Van Tran  Kenisha White
Latin American, Iberian and Latino Cultures  tba  Maria del Rocio Carranza Brito
Liberal Studies  Professor George Fragopoulos  Francesca Paradiso
Library  Professor Beth Posner
Linguistics  Professor Kyle Gorman  Chaya Nove
Professor Christina Tortora  Tysean Bucknor
Mathematics  Professor Martin Bendersky  Josiah Sugarman
Professor Krzysztof Klosin
Middle Eastern Studies  Professor Dina LeGall  Karl Haussman
Music  Professor Eliot Bates  Stephen Gomez
Nanoscience  TBA  Jamie Cain
Nursing Science  Professor Eileen Gigliotti  Anne Marie Leveille
Philosophy  Professor John Greenwood  Michael Hillas
Physics  Professor Vadim Oganesyan  Inna Korzhovsky
Samkhya Basu
Political Science  Professor Till Weber  Milo Ward
Professor Benedetto Fontana
Psychology  Professor Roger Hart  Sara Babad
<table>
<thead>
<tr>
<th>Field</th>
<th>Professor 1</th>
<th>Professor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative Methods</td>
<td>Professor Roseanne Flores</td>
<td>Priscilla Bustamante</td>
</tr>
<tr>
<td></td>
<td>Professor H. Philip Ziegler</td>
<td>Alysha Rafeeq</td>
</tr>
<tr>
<td></td>
<td>Professor Margaret Pipe</td>
<td></td>
</tr>
<tr>
<td>In the Social Sciences</td>
<td>Professor Jeremy Porter</td>
<td>Nikita Khalid</td>
</tr>
<tr>
<td>Social Welfare</td>
<td>tba</td>
<td>tba</td>
</tr>
<tr>
<td>Sociology</td>
<td>Professor Richard Alba</td>
<td>Miriam Moster</td>
</tr>
<tr>
<td></td>
<td>Professor Juan Battle</td>
<td>Daniela Tagtachian</td>
</tr>
<tr>
<td>Speech &amp; Hearing Sciences</td>
<td>Professor Valerie Shafer</td>
<td>Katarina Antolovic</td>
</tr>
<tr>
<td>Theatre and Performance</td>
<td>Professor Peter Eckersall</td>
<td>Ruijiao Dong</td>
</tr>
<tr>
<td>Urban Education</td>
<td>Professor Victor Bobetsky</td>
<td>Kahdeidra Martin</td>
</tr>
<tr>
<td></td>
<td>Professor Limarys Caraballo</td>
<td>Kimberly Vanderbilt</td>
</tr>
<tr>
<td>Women’s and Gender Studies</td>
<td>tba</td>
<td>Jillian Silvia</td>
</tr>
</tbody>
</table>
Spring 2021

Centers and Institutes – Non-voting Members

Prof. Anne Volk
American Social History Project/Center for Media and Learning

Dr. Barbara Dobbs MacKenzie
Barry S. Book Center for Music Research and Documentation

Prof. Mauricio Font
Bildner Center for Western Hemisphere Studies

Prof. Deborah Hecht
Center for Advanced Study in Education (CASE)

Prof. Roger Hart
Center for Human Environments

Prof. Francesca Bregoli
Center for Jewish Studies

TBA
Institute for Sephardic Studies

TBA
The Rosenthal Institute for Holocaust Studies

Prof. Laird Bergad
Center for Latin American, Caribbean and Latino Studies

Prof. Justin Brown
Center for Lesbian and Gay Studies (CLAGS)

Prof. Peter Hitchcock
Center for Place, Culture, and Politics

Prof. Keith Wilson
Center for the Humanities

Prof. Alberta Gatti
Center for Integrated Language Communities

Prof. Dana Ain Davis
Center for the Study of Women and Society

Prof. John Mollenkopf
Center for Urban Research
Dr. Joseph Pereira  
CUNY Data Service

Steven Romalewski  
CUNY Mapping Service

Lesley Hirsch  
New York City Market Information Service (NYCLMIS)

Prof. Kathleen McCarthy  
Center on Philanthropy and Civil Society

Prof. Ted Brown  
CUNY Institute for Software Design and Development (CISDD)

Prof. Juliette Blevins  
Endangered Language Initiative

Prof. Patrizia Nobbe  
European Union Studies Center

Prof. Cathy Davidson  
Futures Initiative

Prof. Matthew Gold  
GC Digital Initiatives

Prof. Peter Aigner  
Gotham Center for New York City History

Prof. Francesca Sautman  
Henri Peyre French Institute

Prof. Sophia Perdikaris  
Human Ecodynamics Research Center (HERC)

Prof. William Bialek  
Initiative for the Theoretical Sciences

Prof. Alberta Gatti  
Institute for Language Education in Transcultural Context

Prof. Herman Bennett  
Institute for Research on the African Diaspora in the Americas & the Caribbean (IRADAC)

Prof. Ken Wissoker  
Intellectual Publics

Prof. Katherine Carl  
James Gallery
Katherine Lu Hsu
Latin/Greek Institute

Prof. Kai Bird
Leon Levy Center for Biography

Prof. Janet Gornick
James M. and Cathleen D. Stone Center on Socio-Economic Inequality

Prof. Frank Hentschker
Martin E. Segal Theatre Center

Prof. Beth Baron
Middle East and Middle Eastern American Center (MEMEAC)

Prof. John Torpey
Ralph Bunche Institute for International Studies

Prof. Gita Martohardjono
Research Institute for the Study of Language in Urban Society (RISLUS)

Prof. Duncan Faherty
Revolutionizing American Studies Initiative

Prof. Romina Padro
The Saul Kripke Center
I. Approval of Minutes from October 21, 2020 – Approved

II. Opening Comments, President Robin Garrell
   a. Budget FY 21 - There is no new news yet on the budget.
   b. GC Town Hall: The GC will have a Town Hall Meeting on December 14th. Participants should register for the Zoom meeting by Friday and constituents are encouraged to submit questions in advance.
   c. Provost Search: The search will begin soon. There will be a form via the President’s Office for candidate nominations and for participation on the search committee.
   d. Diversity, Equity, and Inclusion: During the tenure of Interim President Muyskens, Professor Martin Ruck initiated working groups to address issues of Diversity, Equity, and Inclusion. These working groups have recently reported back to President Garrell and more information about their findings and ongoing work will be released soon.
   e. Credit/non-credit grading for Fall 2020 semester:
      i. In Spring 2020, CUNY passed a resolution on credit/non-credit grading options for students in light of the COVID-19 pandemic. The CUNY Board just recently passed a resolution to make this option possible for Fall 2020 as well and has given
campsuses until this coming Friday at noon to select among the three possible options:

1. Implement credit/no-credit option for all courses.
2. Implement credit/no-credit option for some courses.
3. Do not implement the credit/no-credit option at all.

ii. Registrar Vin DeLuca explained the credit option issues to the council and noted that this has a significant effect on students who have, or were planning to, withdraw from courses. He recommended that students hold off withdrawing from courses until a decision has been reached about what option the GC will implement.

iii. Following a discussion of options and concerns, a survey of council members indicated that most think allowing the option for some classes is the preferred decision. Programs could decide on a case by case bases which course were not suitable for this option.

III. Curriculum and Degree Requirements - Major Items
   a. Ph.D. Program in Philosophy –
      i. new Advanced Certificate Program - approved
      ii. 3 new courses – approved
   b. Ph.D. Program in Anthropology
      i. Bulletin changes and 17 revised courses – approved
   c. Ph.D. Program in English
      i. 2 new courses – approved
   d. M.A. Program in International Migration Studies
      i. 1 new course – approved
   e. Ph.D. Program in Computer Science
      i. Data Science Advanced Certificate – approved with friendly amendment to clarify funding model, resources, cohort size.

IV. Structure Committee
   a. Ph.D. Program in Linguistics – revised governance – approved
   b. Ph.D. Program in Computer Science – revised governance – approved

V. University Faculty Senate Report – Professor Robert Nolan
   a. UFS Charter – The Senate has begun the process to revise the UFS Charter.
   b. EVC Cruz - attended the last meeting and commended faculty on their agility in the move to online teaching.
   c. CUNY Community College Caucus - is entering into discussion to participate in the University Faculty Senate as the seven community colleges are not currently included.
   d. Credit/no-credit policy: It was discussed at the UFS meeting and it is likely to continue by board resolution into the spring semester.

VI. New Business
   a. LAILAC update: The council was informed that due to internal conflict and disruptions that need to be resolved, the LAILAC program has suspended Fall 2021 Admissions. The current Executive Officer and deputy Executive Officer are resigning and a new EO will be taking over who has not been involved in the current conflicts. A meeting is being
scheduled for LAILAC soon to hear all voices from the program and there is a commitment to solving the issues well and protecting student well-being.

Meeting adjourned, 5pm
Academic Matters

PART A: ACADEMIC MATTERS

Section AII: Changes in Generic Degree Requirements

Changes in College-wide Degree Requirements include

-Bulletin and Requirement changes

AII.1 The following Bulletin Changes are proposed for the

Program: MA/PhD Program in Comparative Literature
Program Code:
Effective:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>In addition to the general University requirements stated earlier in this bulletin, the applicant is required to have received a bachelor’s degree with a major in one of the following subjects: Comparative Literature; English; a modern foreign language (e.g., French, German, Italian, Portuguese, Spanish) or a classical language acceptable to the Admissions Committee; philosophy; history; or other fields acceptable to the Admissions Committee. In addition, the applicant should have a superior record in undergraduate courses in literature. An applicant who has an M.A. degree in a single literature and who meets the other special requirements may also be eligible for admission. Applicants must possess linguistic and literary preparation sufficient to qualify for admission to graduate courses in a foreign literature of their choice. They are also required to have a reading knowledge of an approved second foreign language, which should permit them to read literature in this language with ease. This knowledge of a second foreign language may be tested by a written examination. An applicant presenting only one foreign language may be admitted to matriculation conditionally. Any conditions must be satisfied, normally through examination, before the completion of 15 credits. The applicant for the Ph.D. degree in Comparative Literature with a specialization in Classics is required to have a knowledge of Classical Greek and Latin. Applicants who have not studied one of the classical languages are advised to investigate the Latin/Greek Institute at The Graduate Center. The applicant for the Ph.D. degree in Comparative Literature with a specialization in German must be proficient in German. The applicant for a Ph.D. degree in Comparative Literature in the Italian specialization is required to demonstrate proficiency in all Italian language skills. All applicants are required to take the Graduate Record Exam (GRE) General Test.</td>
<td>In addition to the general University requirements stated earlier in this bulletin, the applicant is required to have received a bachelor’s degree with a major in one of the following subjects: Comparative Literature; English; a modern foreign language (e.g., French, German, Italian, Portuguese, Spanish) or a classical language acceptable to the Admissions Committee; philosophy; history; or other fields acceptable to the Admissions Committee. In addition, the applicant should have a superior record in undergraduate courses in literature. An applicant who has an M.A. degree in a single literature and who meets the other special requirements may also be eligible for admission. Applicants must possess linguistic and literary preparation sufficient to qualify for admission to graduate courses in a foreign literature of their choice. They are also required to have a reading knowledge of an approved second foreign language, which should permit them to read literature in this language with ease. This knowledge of a second foreign language may be tested by a written examination. An applicant presenting only one foreign language may be admitted to matriculation conditionally. Any conditions must be satisfied, normally through examination, before the completion of 15 credits. The applicant for the Ph.D. degree in Comparative Literature with a specialization in Classics is required to have a knowledge of Classical Greek and Latin. Applicants who have not studied one of the classical languages are advised to investigate the Latin/Greek Institute at The Graduate Center. The applicant for the Ph.D. degree in Comparative Literature with a specialization in German must be proficient in German. The applicant for a Ph.D. degree in Comparative Literature in the Italian specialization is required to demonstrate proficiency in all Italian language skills. All applicants are required to take the Graduate Record Exam (GRE) General Test. The Graduate Record Exam (GRE) is not required.</td>
</tr>
</tbody>
</table>
Rationale:
We have found that GRE scores correlate poorly with student success in our Program and in the discipline more broadly.
AV: 1 CHANGES TO BE OFFERED IN THE PH.D. PROGRAM IN EES

<table>
<thead>
<tr>
<th>CUNYFirst Course ID</th>
<th>58038</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>Earth Systems I: Origin/Evolution Earth &amp; Life</td>
</tr>
<tr>
<td>TO</td>
<td>Earth Systems I</td>
</tr>
<tr>
<td>Department(s)</td>
<td>Earth &amp; Environmental Studies</td>
</tr>
<tr>
<td>Department(s)</td>
<td>Earth &amp; Environmental Studies</td>
</tr>
<tr>
<td>Course</td>
<td>EES 71600 - 01</td>
</tr>
<tr>
<td>Course</td>
<td>EES 71600 - 01</td>
</tr>
<tr>
<td>Pre or co requisite</td>
<td>n/a</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Acceptance to EES PhD Program (EGS Specialization)</td>
</tr>
<tr>
<td>Hours</td>
<td>2 hours p/w. 30 hours total.</td>
</tr>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
<tr>
<td>Description</td>
<td>This seminar-style course is divided into two parts: Dynamics of the ocean, and Past earth’s climate dynamics. Each week, the group will be required to read 1 scientific peer reviewed article on pre-determined topics. In addition to learning about the ocean and past climate of Earth, by the end of this course you will also have improved your skills at: Reading, understanding, synthesizing and evaluating scientific literature Oral presentation and discussion of scientific results Writing scientific papers Collaborating with your peers</td>
</tr>
<tr>
<td>Requirement Designation</td>
<td>Required EGS Coursework</td>
</tr>
<tr>
<td>Requirement Designation</td>
<td>Required EGS Coursework</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>[ ] Yes [ x ] No</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>[ ] Yes [ x ] No</td>
</tr>
<tr>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc)</td>
<td>Seminar</td>
</tr>
<tr>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc)</td>
<td>Seminar</td>
</tr>
</tbody>
</table>
Course Applicability

[ ] Major
[ ] Gen Ed Required
[ ] English Composition
[ ] Mathematics
[ ] Science
[ ] Gen Ed - Flexible
[ ] World Cultures
[ ] US Experience in its Diversity
[ ] Creative Expression
[ ] Individual and Society
[ ] Scientific World
[ ] Gen Ed - College Option

College Option
Detail______________________

etc

[ ] Major
[ ] Gen Ed Required
[ ] English Composition
[ ] Mathematics
[ ] Science
[ ] Gen Ed - Flexible
[ ] World Cultures
[ ] US Experience in its Diversity
[ ] Creative Expression
[ ] Individual and Society
[ ] Scientific World
[ ] Gen Ed - College Option

College Option
Detail______________________

Effective Term

Spring Fall 20

Fall 21

Rationale:

The Earth Systems I and Earth Systems II sequence are intended to help students develop an integrated understanding of Earth Systems Science. Notice that the Earth System I course focuses on Dynamics of the Ocean and Earth’s Past Climate. This focus topic is not really reflected in the by-line of the course, “Origin and Evolution of Earth and Life”. Therefore, we are proposing to shorten the names of these courses simply to Earth Systems I and Earth Systems II. As presently, in this sequence students will study interactions between the ocean, atmosphere, land-sea interface surface, cryosphere, biosphere and climate (the learning outcomes remain unchanged). By making the course title more general, we provide easier scope for faculty to emphasize interactions between the biosphere and other Earth Systems as requested by and to best meet needs of our students. The name change also offers more scope for instructing faculty to contextualize teaching Earth Systems in their particular area of research/expertise. In turn, this flexibility increases the diversity of faculty members that may teach these courses.

Course description and objectives:
This seminar-style course is divided into two parts: Dynamics of the ocean; and Past Earth’s climate dynamics. Each week, the group will be required to read 1 scientific peer reviewed article on pre-determined topics. In class, we will develop a group dynamic called “authors-reviewers interactions”. Half of the class will play the role of authors of the article and half of the class will play the role of reviewers of the article.

The role of each student will be chosen by draw each class. Subgroups will discuss the articles, and a designated group member(s) will then summarize the subgroup findings to the entire class and lead the subsequent open discussion between authors and reviewers. Students are encouraged to draw diagrams on the board. At the end of the group dynamics, each group will write a critical review of the article.

In addition to learning about the ocean and past climate of Earth, by the end of this course you will also have improved your skills at:

- Reading, understanding, synthesizing and evaluating scientific literature
- Oral presentation and discussion of scientific results
- Writing scientific papers
- Collaborating with your peers
**AV: 1 Changes to be offered in the Ph.D. in EES**

<table>
<thead>
<tr>
<th>CUNYFirst Course ID</th>
<th>61186</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FROM</strong></td>
<td></td>
</tr>
<tr>
<td>Department(s)</td>
<td>Earth &amp; Environmental Studies</td>
</tr>
<tr>
<td>Course</td>
<td>EES 71700 - 01</td>
</tr>
<tr>
<td>Pre or co requisite</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>TO</strong></td>
<td></td>
</tr>
<tr>
<td>Department(s)</td>
<td>Earth &amp; Environmental Studies</td>
</tr>
<tr>
<td>Course</td>
<td>EES 71700 - 01</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>EES 71600 - 01 (Earth Systems I)</td>
</tr>
<tr>
<td>Hours</td>
<td>2 hours p/w. 30 hours total.</td>
</tr>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

**Description**

This seminar-style course is divided into two parts: (1) Dynamics and composition of Earth’s Interior; and (2) Atmosphere and climate dynamics. In addition to learning about the geosphere and atmosphere, by the end of this course you will also have improved your skills at reading, understanding, synthesizing and evaluating scientific literature and writing scientific papers.
<table>
<thead>
<tr>
<th>Requirement Designation</th>
<th>Required EGS Coursework</th>
<th>Requirement Designation</th>
<th>Required EGS Coursework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal Arts</td>
<td>[ ] Yes [ x ] No</td>
<td>Liberal Arts</td>
<td>[ ] Yes [ x ] No</td>
</tr>
<tr>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc.)</td>
<td>Seminar</td>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc)</td>
<td>Seminar</td>
</tr>
<tr>
<td></td>
<td>[ ] Major</td>
<td>[ ] Major</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Gen Ed Required</td>
<td>[ ] Gen Ed Required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] English Composition</td>
<td>[ ] English Composition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Mathematics</td>
<td>[ ] Mathematics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Science</td>
<td>[ ] Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Gen Ed - Flexible</td>
<td>[ ] Gen Ed - Flexible</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] World Cultures</td>
<td>[ ] World Cultures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] US Experience in its Diversity</td>
<td>[ ] US Experience in its Diversity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Creative Expression</td>
<td>[ ] Creative Expression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Individual and Society</td>
<td>[ ] Individual and Society</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Scientific World</td>
<td>[ ] Scientific World</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] Gen Ed - College Option</td>
<td>[ ] Gen Ed - College Option</td>
<td></td>
</tr>
<tr>
<td>College Option</td>
<td></td>
<td>College Option</td>
<td></td>
</tr>
<tr>
<td>Detail__________________</td>
<td></td>
<td>Detail__________________</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective Term</td>
<td>Spring 21</td>
<td>Spring 22</td>
<td></td>
</tr>
</tbody>
</table>

**Rationale:**

The Earth Systems I and Earth Systems II sequence are intended to help students develop an integrated understanding of Earth Systems Science.

Notice that the Earth System II course focuses on Dynamics and composition of Earth’s Interior and Atmosphere and Climate Dynamics. This focus is not really reflected in the by-line of the course, “Earth’s Energy Networks”. Therefore, we are proposing to shorten the names of these course simply to Earth Systems I and Earth Systems II. As presently, in this sequence students will study interactions between the ocean, atmosphere, land- sea interface
surface, cryosphere, biosphere and climate (the learning outcomes remain unchanged). By making the course title more general, we provide easier scope for faculty to emphasize interactions between the biosphere and other Earth Systems as requested by and to best meet needs of our students. The name change also offers more scope for instructing faculty to contextualize teaching Earth Systems in their particular area of research/expertise. In turn, this flexibility increases the diversity of faculty members that may teach these courses.

Course Description and Objectives:

This seminar-style course is divided into two parts: (1) Dynamics and composition of Earth’s Interior; and (2) Atmosphere and climate dynamics.

Each week, the group will be required to read 2–4 scientific journal articles on pre-determined topics (see tentative list on last page). In class, subgroups will discuss given questions related to the articles, and a designated group member(s) will then summarize the subgroup findings to the entire class and lead the subsequent open discussion. A central objective of this course is the production of a term paper on a topic of the group members’ choice, hopefully related to their PhD research. In addition to learning about the geosphere and atmosphere, by the end of this course you will also have improved your skills at:

• Reading, understanding, synthesizing and evaluating scientific literature

• Oral presentation and discussion of scientific results

• Writing scientific papers

• Collaborating with your peers
**SECTION AIV: NEW COURSES**

**AIV.1**

<table>
<thead>
<tr>
<th>CUNYfirst Course ID</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Department(s)</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Career</td>
<td>[ ] Undergraduate [X] Graduate</td>
</tr>
<tr>
<td>Academic Level</td>
<td>[X] Regular [ ] Compensatory [ ] Developmental [ ] Remedial</td>
</tr>
<tr>
<td>Subject Area</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Course Prefix</td>
<td>NANO</td>
</tr>
<tr>
<td>Course Number</td>
<td>70500</td>
</tr>
<tr>
<td>Course Title</td>
<td>Scientific Writing</td>
</tr>
<tr>
<td>Catalogue Description</td>
<td>The course covers the process of writing a scientific paper or thesis chapter based on one's own research. The topics covered include the art of writing, developing coherent and logical arguments, clearly presenting data, and the publication process. Students will develop a thesis chapter or manuscript, and present their research for assessment.</td>
</tr>
</tbody>
</table>

**Pre/ Co Requisites**

**Credits**

**Contact Hours**

**Liberal Arts**

**Course Attribute (e.g. Writing Intensive, Honors, etc)**

**Course Applicability**

| [ ] Major |
| [ ] Gen Ed Required | [ ] Gen Ed - Flexible |
| [ ] English Composition |
| [ ] Mathematics |
| [X] Science |
| [ ] World Cultures |
| [ ] US Experience in its Diversity |
| [ ] Creative Expression |
| [ ] Individual and Society |
| [ ] Scientific World |

**Effective Term**

**Course Description:** This course covers the practical aspects of writing research results for publication in the scientific literature or in a thesis. The concepts covered will include the art of writing scientific manuscripts, developing logical and coherent arguments, and the process of submitting a manuscript for publication. The course is geared for students who have some data from their thesis research.

**Rationale:** Writing is an essential part of the scientific process, beginning with writing progress reports and culminating in a thesis and peer-reviewed papers in the literature. The scientific writing process is more formalized and the structure of journal articles and a thesis rigid. The analyzed research data has to be presented in a coherent and logical manner in the formal thesis and in scientific journals. Thus, the mechanics of writing a scientific manuscript and a thesis are learned skills that will be covered in this course.

**Learning Goals/Outcomes:** This course will take on the format of an interactive workshop to introduce students to the art of scientific writing needed to prepare their thesis and journal articles. The topics covered will include distillation of the literature to contextualize the research presented, the process of thesis writing and manuscript submission and review. The course will also provide useful
techniques for identifying appropriate journals for submission of a scientific manuscript based on the students’ thesis data.

The goals of this course are, as follows:

1. To develop familiarity with the process of writing, editing, reviewing, submitting, revising and resubmitting a scientific manuscript to an appropriate journal
2. To develop a draft thesis

**Assessment**: The outcomes will be measured by class participation and by a written scientific manuscript or thesis chapter based on their own research. Each student will also present an oral presentation of their research. The depth of presentation and the manuscript/chapter will be assessed.
### SECTION AIV: NEW COURSES

#### AIV.1

<table>
<thead>
<tr>
<th>CUNYfirst Course ID</th>
<th>Nanoscience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department(s)</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Career</td>
<td>Undergraduate [X] Graduate</td>
</tr>
<tr>
<td>Academic Level</td>
<td>Regular [X] Compensatory [ ] Developmental [ ] Remedial</td>
</tr>
<tr>
<td>Subject Area</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Course Prefix</td>
<td>NANO</td>
</tr>
<tr>
<td>Course Number</td>
<td>79400</td>
</tr>
<tr>
<td>Course Title</td>
<td>Advanced Supervised Research</td>
</tr>
<tr>
<td>Catalogue Description</td>
<td>The course provides the student with a mentored research experience focused on solving a particular research problem. The student will collect and analyze data to test scientific hypotheses and synthesize knowledge for their master’s capstone project.</td>
</tr>
<tr>
<td>Pre/ Co Requisites</td>
<td>Scientific Writing</td>
</tr>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
<tr>
<td>Contact Hours</td>
<td>45 per semester</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>Yes [X] No</td>
</tr>
</tbody>
</table>

#### Course Attribute (e.g. Writing Intensive, Honors, etc)

<table>
<thead>
<tr>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Ed Required</td>
</tr>
<tr>
<td>English Composition</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>Science</td>
</tr>
<tr>
<td>Gen Ed - Flexible</td>
</tr>
<tr>
<td>World Cultures</td>
</tr>
<tr>
<td>US Experience in its Diversity</td>
</tr>
<tr>
<td>Creative Expression</td>
</tr>
<tr>
<td>Individual and Society</td>
</tr>
<tr>
<td>Scientific World</td>
</tr>
</tbody>
</table>

#### Effective Term

<table>
<thead>
<tr>
<th>Effective Term</th>
</tr>
</thead>
</table>

**Course Description:** This course provides students with the opportunity to produce original scientific research in the field of nanoscience that will be used to develop their master’s thesis. Students carry out a cutting-edge research project of their interest in nanoscience under the guidance of a faculty member. The research performed will provide the basis for their master’s thesis.

**Rationale:** The process of scientific research underlying this course is a logical thought process that recognizes significant knowledge gaps and attempts to fill them by designing, performing and analyzing data from critical experiments. Since research is not a linear process, it is best learned with an experienced mentor who can guide the student through the relevant literature to identify the gap in knowledge, and then help them logically develop the experiments necessary to synthesize the knowledge that will fill the gap. This mentorship may include instruction in experimental techniques, computational methods, synthetic methods, and data analysis depending on the research project and approach taken. Thus, the student will develop as an independent scientist and problem solver over this research experience as they collect and analyze the data for their master’s thesis.
**Learning Goals/Outcomes:** This course will take on the format of a mentored research experience. The student will read the literature and develop a research project under the mentorship of their faculty research advisor. The student will plan and execute experiments to test scientific hypotheses and will analyze the data collected to draw conclusions and drive the research project to completion. The topics covered and experimental methods used will vary by project and mentor.

The goals of this course are, as follows:

1. Provide focused study in nanoscience
2. Learn effective experimental design
3. Acquire practical experience in experimental methods in nanoscience
4. Learn to analyze data, draw sound conclusions, and synthesize knowledge
5. Develop logical thinking and effective communication strategies

**Assessment:** The outcomes will be assessed by the research advisor based on the progress made on the research project. These include productivity in the research laboratory, intellectual development and ability to work independently as the student progressed toward the defense of their master’s thesis.
SECTION AIV: NEW COURSES

AIV.1

<table>
<thead>
<tr>
<th>CUNYfirst Course ID</th>
<th>Nanoscience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department(s)</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Career</td>
<td>[ ] Undergraduate [X] Graduate</td>
</tr>
<tr>
<td>Academic Level</td>
<td>[X] Regular [ ] Compensatory [ ] Developmental [ ] Remedial</td>
</tr>
<tr>
<td>Subject Area</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Course Prefix</td>
<td>NANO</td>
</tr>
<tr>
<td>Course Number</td>
<td>79000</td>
</tr>
<tr>
<td>Course Title</td>
<td>Thesis/Capstone</td>
</tr>
<tr>
<td>Catalogue Description</td>
<td>In this course, students will write a thesis or capstone project based upon the research undertaken in Advanced Supervised Research, NANO 79400. The thesis is required for completion of the M.S. in Nanoscience. The project must be completed under the supervision of any member of the Nanoscience faculty.</td>
</tr>
<tr>
<td>Pre/ Co Requisites</td>
<td>Advanced Supervised Research and Scientific Writing</td>
</tr>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
<tr>
<td>Contact Hours</td>
<td>45 per semester</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>[ ] Yes [ X ] No</td>
</tr>
<tr>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc)</td>
<td></td>
</tr>
<tr>
<td>Course Applicability</td>
<td>[ ] Major</td>
</tr>
<tr>
<td></td>
<td>[ ] Gen Ed Required [ ] Gen Ed - Flexible</td>
</tr>
<tr>
<td></td>
<td>[ ] English Composition [ ] World Cultures</td>
</tr>
<tr>
<td></td>
<td>[ ] Mathematics [ ] US Experience in its Diversity</td>
</tr>
<tr>
<td></td>
<td>[x] Science [ ] Creative Expression</td>
</tr>
<tr>
<td></td>
<td>[ ] Individual and Society</td>
</tr>
<tr>
<td></td>
<td>[ ] Scientific World</td>
</tr>
</tbody>
</table>

Effective Term

Rationale: Thesis/Capstone in Nanoscience
NANO 79000 (3 credits)
Description of Process and Requirements

All M.S. students in Nanoscience are required to complete a thesis or capstone project under the supervision of a Nanoscience faculty member to complete the degree. Students will be expected to take Advanced Supervised Research, NANO 79400, and Scientific Writing, NANO 70500 prior to or concurrently with the writing of the thesis. In Advanced Supervised Research, students will be performing research in a laboratory on one of the CUNY campuses. A topic for the thesis will be identified, based on the research conducted, and in consultation with the faculty thesis adviser. The Program Director will advise students towards the selection of an appropriate thesis adviser and topic. The final draft of the thesis will be submitted to the faculty adviser in advance of the final thesis deposit deadline as set by The Graduate Center. An oral defense will not be required. Grading for the thesis will be Pass/Fail. Credit will be awarded upon approval of the thesis by the faculty adviser and the Program Director.
### SECTION AIV: NEW COURSES

**AIV.1**

<table>
<thead>
<tr>
<th>CUNYfirst Course ID</th>
<th>Nanoscience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department(s)</td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>[ ] Undergraduate [X] Graduate</td>
</tr>
<tr>
<td>Academic Level</td>
<td>[X] Regular [ ] Compensatory [ ] Developmental [ ] Remedial</td>
</tr>
<tr>
<td>Subject Area</td>
<td>Nanoscience</td>
</tr>
<tr>
<td>Course Prefix</td>
<td>NANO</td>
</tr>
<tr>
<td>Course Number</td>
<td>71000</td>
</tr>
<tr>
<td>Course Title</td>
<td>Nanofabrication and Nanodevices</td>
</tr>
<tr>
<td>Catalogue Description</td>
<td>The goal of this course is to introduce students to both the theoretical and practical aspects of nano and micro fabrication. The course is intended for students who plan to pursue experimental research in the fields of nanotechnology, solid state or condensed matter physics, photonics, materials science and / or electrical engineering. Students will master the most common micro and nano fabrication and characterization techniques that are used in both industrial production foundries as well as academic labs.</td>
</tr>
<tr>
<td>Pre/ Co Requisites</td>
<td>Basic Electrodynamics, and Solid State Physics</td>
</tr>
<tr>
<td>Credits</td>
<td>4</td>
</tr>
<tr>
<td>Contact Hours</td>
<td>45 per semester</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>[ ] Yes [ X ] No</td>
</tr>
<tr>
<td>Course Attribute (e.g. Writing Intensive, Honors, etc)</td>
<td>[ ] Major</td>
</tr>
<tr>
<td></td>
<td>[ ] Gen Ed Required</td>
</tr>
<tr>
<td></td>
<td>[ ] English Composition</td>
</tr>
<tr>
<td></td>
<td>[ ] Mathematics</td>
</tr>
<tr>
<td></td>
<td>[ X ] Science</td>
</tr>
<tr>
<td></td>
<td>[ ] Individual and Society</td>
</tr>
<tr>
<td>Effective Term</td>
<td></td>
</tr>
</tbody>
</table>
**Course Description:**

The goal of this course is to introduce students to both the theoretical and practical aspects of nano and micro fabrication. The course is intended for students who plan to pursue experimental research in the fields of nanotechnology, solid state or condensed matter physics, photonics, materials science and / or electrical engineering. Students will master the most common micro and nano fabrication and characterization techniques that are used in both industrial production foundries as well as academic labs. After successfully completing this course, the students will be able to pursue experimental research projects that utilize nanofabrication as a means of creating their devices and research samples.

The course consists of two principle components: lecture and laboratory. The laboratory component will be held at the ASRC NanoFabrication Facility. During the laboratory portion of the course the students will first attend mini-introduction sessions, the aim of which is to teach the students how to properly and safely use the nanofabrication equipment. This will be done during the first half of the semester. During the second half of the semester the students will use the Nanofabrication Facility, under the limited supervision of the Nanofabrication Staff, to complete their semester project. The semester project consists of fabricating and characterizing a device, such as a solar cell, a light emitting diode, a transistor, or others chosen in consultation with the instructor.

The lecture topics include:

- Preliminary Topics: Introduction to Vacuum Systems and Vacuum Measurement Techniques and the Physics and Chemistry of Plasmas
- The Physics of Nanostructured Devices I: Overview of typical electronic devices
- The Physics of Nanostructured Devices II: Overview of typical photonic devices
- The Physics of Nanostructured Devices III: All about MEMS, NEMS and Microfluidics
- Lithography I: The Basics of Photo Lithography (Resist Chemistry and rheology, light sources, incoherent and partially coherent light, mask aligners, steppers, scanners)
- Lithography II: Electron Beam Lithography (Electron beam resists, designing patterns for electron beam lithography, basics of pattern overlay, dealing with charging effects)
- Deposition Methods: Electron beam evaporation, sputtering, thermal evaporation, atomic layer deposition, thermal oxidation, chemical vapor deposition
- All About Etching: chemical etching, plasma etching, milling, focused ion beam milling, the Bosch process, how to etch silicon, how to etch silicon oxide and nitride, how to etch semiconductors (III-V and II-VI semiconductors), how to etch metals, how to etch 2D materials
- Measurement and Characterization Techniques: SEM, TEM, XRD, EDX, TOF-SIMS, AFM, KPFM, Conductive AFM, Stylus profilometry, Optical Interferometry
- Practical Issues in NanoFabrication: Process Design, Six Sigma, Design of Experiments, Etching vs. milling, mitigating line-edge roughness, sputtering vs. evaporating, materials selection for etch selectivities, making small devices and features, designing patterns for lift off, designing patterns for etching

**Prerequisite – Basic Electrodynamics, and Solid State Physics**

**Rationale:**
Micro and nanostructured devices are ubiquitous in numerous physical subfields, including, solid state physics, condensed matter physics, photonics, electrical engineering, chemical engineering, mechanical engineering and many others. In order to successfully fabricate nanostructured devices, the students need a theoretical understanding of the processes used during the fabrication, an understanding of how the nanofabrication tools work, as well as hands-on experience working with these tools. The lecture component of this course introduces the students to the theoretical aspects of nanofabrication processes and tools, while the laboratory components affords the students the opportunity to work in the nanofabrication facility to gain hands-on fabrication experience. Currently there are no courses at CUNY that are devoted to nanofabrication techniques. The course also gives the students an overview of research in academia as well as in industry. The course overlaps with no other course in the program and no course will be dropped to accommodate this offering.

**Learning Goals/Outcomes:**

In this course the students will gain both theoretical and practical knowledge of the techniques and equipment used in micro and nanofabrication research and production laboratories. After successfully completing this course, the students will be able to

- understand the working principles of vacuum generation and measurement technology and understand how vacuum levels in nanofabrication tools affect the performance of the devices fabricated using those tools;
- understand the basic physics and chemistry of plasmas as they relate to micro and nano fabrication;
- understand the principles of various nano and micro fabrication techniques, in particular techniques that relate to pattern generation (optical lithography, electron beam lithography, ion beam milling, and direct laser writing), deposition techniques (physical and chemical vapor deposition, sputtering, oxidation, atomic layer deposition, and plasma assisted deposition) and etching (chemical etching, plasma etching, and ion beam milling);
- understand how fabrication techniques affect device performance, for example, understanding how line-edge roughness incurred in a lithographic process affects the Q-factor of an optical resonator or a waveguide, or how the choice of a metal deposition technique and subsequent processing steps affect the contact resistance of electrical contacts.

**Assessment:**

The grade for the semester will be assigned on the basis of a semester project. The semester project consists of fabricating and characterizing an electronic or an optical device. This is a group project. Exemplary devices include a solar cell, a light emitting diode, a transistor, a meta-material surface, or a waveguide. Other devices may be selected in consultation with the instructor. The grade for the course is based on two papers (a literature review and a project proposal) and a final report and presentation, in which you present the results of your fabrication project. Specific grading details are provided below.

**Literature Review (30% of the Semester Grade)**

In this paper the students will discuss the basic physics of the device which they will fabricate for their final project, as well as the fabrication techniques which are used to fabricate these (or similar) types of devices. The paper must contain the following sections:

1. Introduction: Describe what the device is, and how it is used. This section should contain at least 10-20 references.
2. Physics of the Device: This section describes the basic operating principles of the device the students will ultimately fabricate. This section should contain at least 5-10 references.

3. Review of Fabrication Techniques: This section should explain most of the standard fabrication techniques which are used to fabricate the proposed devices. In addition to explaining the fabrication techniques, you should also clearly explain why they are chosen, and how they affect the performance of the device. This section should contain at least 10-20 references.

Project Proposal (20 % of the Semester Grade)

The project proposal is a short paper in which the students will propose the device they will fabricate during the second half of the semester and a detailed plan of how they plan to fabricate and characterize this device. This paper will include all of the necessary steps to both fabricate and characterize the proposed device.

Final Paper and Presentation (50 % of the Semester Grade)

This paper will present a summary of the student’s work during the laboratory component of the course. This paper will resemble (in style and scope) a scientific publication.
M.A. Program in Biography and Memoir Governance Structure

I. Organization of the M.A. Program in Biography and Memoir

A. Director:
The Masters of Arts Program in Biography and Memoir has a Program Director responsible for overall administration and oversight of the affairs of the program in accordance with the policies established by the program faculty, the Graduate Council, and the Board of Trustees. The Director will be appointed by the President for a term of three years, which is renewable. The duties of the Director will include, but will not be limited to:

1. Presiding at meetings of the M.A. Program in Biography and Memoir faculty and Executive Committee.
2. Convening meetings with the Biography and Memoir faculty, the Executive Committee, and the Master’s students.
3. Appointing faculty to the following standing committees – Admissions, Curriculum, Elections, and Faculty Membership.
4. After consultation with the Provost or President, the Director may appoint a Deputy Director.

B. Standing Committees:
1. Executive Committee
2. Admissions Committee
3. Curriculum Committee
4. Faculty Membership Committee
5. Elections Committee

II. Committees

A. Executive Committee
1. The Executive Committee is responsible for the operation and administration of the M.A. Program in Biography and Memoir subject to the policies established by the program faculty. The Executive Committee shall consider, approve, disapprove, and modify actions of the program standing committees.

2. The Executive Committee shall consist of the Director of the M.A. Program in Biography and Memoir, who shall serve as ex-officio chair and have voting rights, five elected M.A. Program in Biography and Memoir faculty members, and two M.A. Program in Biography and Memoir students. The Director shall be appointed for a three year term by the President and Provost, and the Executive Committee elected every two years by the Program faculty, for a two-year term. The assumption of office by the Director and Executive Committee will be staggered in order to ensure continuity. So far as possible, the Committee should come from a range of disciplines and campuses. The members can be re-elected.

3. Students from the M.A. Program in Biography and Memoir Program shall elect two student members (and one alternate) for a one-year term, with the position open for re-election.

4. Each member of the Executive Committee shall have one vote, with two important exceptions. The student members shall have voice but no vote on matters concerning academic issues regarding individual students or faculty appointments.

5. The Executive Committee shall meet at least once a semester.
6. The Executive Committee shall meet with faculty and students in the M.A. Program in Biography and Memoir at least once a year.

7. Copies of the agenda and minutes of the Executive Committee meetings shall be distributed electronically prior to each meeting to faculty and student members.

B. Admissions Committee
1. The Admissions Committee is responsible for developing student admission procedures and admission standards for the program. The committee makes student admission decisions.

2. The Admissions Committee shall consist of the Director, three faculty members appointed by the Director, and one elected (and one alternate) student members.

3. Each member of the Admissions committee shall have voice on policy decisions. Only faculty members will have voice and vote on individual student admission decisions. Students will have voice and no vote on individual student admissions decisions.

C. Curriculum Committee
1. The Curriculum Committee is responsible for reviewing and proposing curricular recommendations to the Executive Committee.

2. The Curriculum Committee shall consist of the Director, two faculty members appointed by the Director, and one elected (and one alternate) student member.

3. Each member of the Curriculum committee shall have one vote. Student members shall have voice and a vote on curriculum committee decisions.

D. Faculty Membership Committee
1. The Faculty Membership Committee has the responsibility for nominating members of the program’s faculty with a view toward including in the MA program faculty newly appointed at the colleges; to maintain a roster of potential faculty appointments; to review all other actions taken in regard to membership on the program faculty.

2. The Faculty Membership Committee shall consist of the Director, two faculty members appointed by the Director, and one elected (and one alternate) student member.

3. Each member of the Faculty Membership committee shall have one vote, except that students shall have voice but no vote on individual faculty appointments or removal of individual faculty members.

5. An applicant for membership to the program shall file a cover letter and complete vita with the committee. All faculty members of the Program shall provide an updated vita at least once every three years or upon the request of the Committee on Faculty Membership.

E. Elections Committee
1. This committee shall have responsibility for nominations and election procedures, which shall take place in Spring. Committees with openings will be identified by the Elections Committee. They will solicit nominations and brief bios and send out electronic ballots to the faculty or students. The results will be tabulated by the APO and Program Director.
2. The Executive Committee establishes an Elections Committee composed of the Director, the Deputy Director (if appointed) one faculty member appointed by the Director, and one elected (and one alternate) student member.
3. The student members for all committees shall serve for one year and may be re-elected. Student members must be matriculated in the program and must be making satisfactory progress to serve. The alternate for each committee shall be the runner-up in each of the elections.
4. For all committees, the student election committee members will solicit nominations and/or will self-nominate.
5. Each member of the Elections committee shall have one vote. Student members shall have voice and a vote on election committee decisions.

III. Minutes
1. Minutes of all standing committee meetings shall be taken and distributed electronically in good time to all faculty and student members, and will be maintained in the main office by the Director.

IV. Faculty Responsibilities
1. At any meeting of the program faculty a quorum shall consist of a majority of the faculty.
2. The faculty, through its members on the Standing Committees of the program, shall have responsibility to establish policies for the program. At any meeting of the faculty, a quorum being present, the faculty may vote to make direct recommendations without Executive Committee approval to the appropriate committee of Graduate Council or to the administration on any matter that affects them.

V. Student Responsibilities
1. The students shall have responsibility through student representatives to the Executive Committee and the Standing Committees to make known their views on the policies of the program.
2. All student representatives shall be chosen by means of an election by email or other electronic means by the students in the program. Any matriculated student shall be eligible to serve.

V. Rules of Order
A. The procedures within Program committees shall be governed by the most current edition of Robert’s Rules of Order, Newly Revised in cases in which they are applicable and not inconsistent with the Graduate School Governance and this governance document.

VI. Amendments to this Document
A. This governance document may be amended by the Executive Committee after an affirmative majority vote and after timely notification of the proposed changes to the program’s faculty and students.
B. If at least 30 percent of the faculty or 30 percent of the matriculated students in a program sign a proposal to change the program’s structure, the proposal shall be forwarded directly to the Committee on Structure of the Graduate Council for its consideration.

Approved by the M.A. Program in Biography and Memoir Executive Committee on 4/23/20
Approved by Structure Committee on February 19, 2021
Approved by Graduate Council on TBD
Master of Arts Program in International Migration Studies (IMS)
Governance Structure

I. Organization of the IMS MA Program
   A. Director: The Master of Arts Program in International Migration Studies has a Director responsible for overall administration and oversight of the affairs of the program in accordance with the policies established by the program faculty, the Graduate Council, and the Board of Trustees. The President will appoint the Director for a term of three years, which is renewable. The duties of the Director will include, but will not be limited to:
      1. Presiding at meetings of the program’s faculty and Executive Committee.
      2. Convening meetings with the program’s faculty, the Executive Committee, and the students.
      3. Appointing faculty to the following standing committees: Admissions, Curriculum, Elections, Faculty Membership, and Diversity, Equity, and Inclusion.
      4. Appointing, after consultation with the Provost or President, a Deputy Director, when needed.

   B. Standing Committees:
      1. Executive Committee
      2. Admissions
      3. Curriculum
      4. Elections
      5. Faculty Membership
      6. Diversity, Equity, and Inclusion

II. Committees
   A. Executive Committee:
      1. The Executive Committee is responsible for the operation and administration of the program subject to the policies established by the program faculty. The Executive Committee shall consider, approve, disapprove, and modify actions of the program standing committees.
      2. The Executive Committee shall consist of the Director, who shall serve as chair and have voting rights, five elected faculty members, and three students of the program. The five faculty members shall be elected by the program faculty, should come from a range of disciplines and campuses, and can be re-elected. The term of the faculty members shall be identical to that of the Director.
      3. Students from the program shall elect three student members for a one-year term and can be re-elected. Student members shall participate in all discussions. Student members must be matriculated in the program and must be making satisfactory progress to serve.
      4. Each member of the Executive Committee shall have one vote, except that the student members shall have voice but not vote on matters concerning academic issues regarding individuals or faculty appointments and admissions.
      5. The Executive Committee shall meet at least once a semester and meet with faculty and students in the program at least once a year.

   B. Admissions Committee:
      1. The Admissions Committee is responsible for making standard procedures for admission to the program, and for making admissions decisions.
      2. The Executive Committee shall establish an Admissions Committee, which shall consist of the Director, two or more faculty members elected to the Executive Committee, and one or more student members.
      3. Each member of the Admissions Committee shall have one vote, except that students shall have voice but not vote on admissions decisions.
C. Curriculum Committee:
   1. The Curriculum Committee is responsible for reviewing and proposing curricular recommendations to the Executive Committee.
   2. The Executive Committee shall establish a Curriculum Committee, which shall consist of the Director, two faculty members from the Executive Committee, and two student members.
   3. Each member of the Curriculum Committee shall have one vote. Students shall have both voice and vote.

D. Elections Committee:
   1. The Elections Committee shall have responsibility for nominations and election procedures, which shall take place in April. It will identify candidates, solicit nominations and brief bios from candidates, and send out electronic ballots to the faculty and/or students.
   2. The Executive Committee shall establish an Elections Committee, which shall consist of the Director, two faculty members from the Executive Committee, and two student members.
   3. For all committees, the student Election Committee members will solicit nominations and/or will self-nominate.
   4. Each member of the Elections Committee shall have one vote. Students shall have both voice and vote.

E. Faculty Membership Committee:
   1. The Faculty Membership Committee shall have the responsibility for nominating members to the program’s faculty, maintaining a roster of potential appointments, recording annually the status of those faculty members currently designated, and reviewing all other actions taken in regard to membership on the program faculty.
   2. The Executive Committee shall establish a Faculty Membership Committee, which shall consist of the Director, two faculty members from the Executive Committee, and two student members.
   3. Each member of the Faculty Membership Committee shall have one vote, except that students shall have voice but not vote on the appointment or removal of individual faculty members.
   4. An applicant for membership to the program shall file an application form and a complete curriculum vita with the committee. All faculty members of the program, with or without tenure, shall provide an updated curriculum vita once every three years, or upon the request of the Faculty Membership Committee. Membership criteria is limited to members of the Graduate Center’s Doctoral Faculty or any member of the CUNY campus-based faculty who is tenure-track or tenured and contributing actively to the functions of the program, such as teaching, advising students, supervising student research, actively participating in program events, and sitting on committees.

F. Diversity, Equity, and Inclusion Committee:
   1. The Diversity, Equity, and Inclusion Committee is responsible for reviewing and proposing recommendations to the Executive Committee on all matters related to these issues throughout the program. Such matters include ensuring the program maintains diversity among faculty and students, a curriculum that promotes a broad range of perspectives (including anti-racism), and an inclusive environment for faculty and students.
   2. The Diversity, Equity, and Inclusion Committee shall consist of the Director, two faculty members from the Executive Committee, and two student members.
   3. Each member of the Diversity, Equity, and Inclusion Committee shall have one vote. Students shall have both voice and vote.

III. Minutes
The Director or Director’s designee shall take minutes of all standing committee meetings, and distribute them electronically in good time to all faculty and student members. The Director will maintain them in the main office.

IV. Rules of Order

The procedures within program committees shall be governed by the most current edition of Robert’s Rules of Order, newly revised in cases in which they are applicable and not inconsistent with the Graduate School Governance and this governance document.

V. Faculty Responsibilities

At any meeting of the program faculty a quorum shall consist of 25 persons or 50 percent of the faculty, whichever is smaller. The faculty, through its members on the standing committees of the program, shall have responsibility to establish policies for the program. At any meeting of the faculty, a quorum being present, the faculty may vote to make direct recommendations without Executive Committee approval to the appropriate committee of Graduate Council or to the administration on any matter that affects them.

VI. Student Responsibilities

The students shall have responsibility through student representatives to the Executive Committee and the standing committees to make known their views on the policies of the program. All students shall be chosen by means of an election by mail, email, or other electronic means by the students in the program. Any matriculated student shall be eligible to serve. Students of the program may make direct recommendations to the appropriate committee of Graduate Council or to the administration for immediate consideration on any matter that affects them if at least 10% of the students in that program support those recommendations.

VII. Amendments to This Document

A. The Executive Committee may amend this governance document by affirmative majority vote and after timely notification of the proposed changes to the program’s faculty and students.

B. If at least 30 percent of the program faculty or 30 percent of the matriculated students in the program sign a proposal to change the program’s structure, the proposal shall be forwarded directly to the Committee on Structure of the Graduate Council for its consideration.

Approved by Structure Committee – February 19, 2021
Budget Committee Proposal – February 2021

The Graduate Center Budget Committee is a consultative body that both makes prospective recommendations regarding the GC’s spending plans, and reviews GC spending after the fact. The Budget Committee aims to relay the priorities of different constituencies, including faculty, staff, and students, offer collaborative advisement on the budget process and the management of resources in keeping with the Graduate Center’s mission to support advanced education for a diverse student body, innovative research, and the public good. It is a consultative committee that will raise and discuss the concerns of the community and will develop expertise in budget matters to be shared with others. The goal is to enhance knowledge and transparency of the GC and CUNY’s tax-levy budget allocations.

The Budget Committee is advisory to the Graduate Center president, who by CUNY by-laws bears the responsibility of recommending an annual budget to the Chancellor.

Faculty: 8 in total, at least one of whom must represent the following groups: consortial faculty members, central line faculty, Executive Officers, and the 3 disciplinary divisions selected for a 2-year term

Staff: 3 in total – the Chair of the HEO Screening Committee + 2 HEOs for a 2-year term by election

Students: 5 in total - the DSC Co-Chair and 4 students, at least of whom must be one masters student and one doctoral student for a 2-year term by election

Ex officio: President, Provost, and the VP for Finance and Administration

In its first meeting the committee will elect the chair, and plan the frequency and dates of future meetings to coordinate with key budgetary decisions. The chair may serve no more than two terms consecutively but will be eligible for reelection after one term out of office.

Approved by Structure Committee on February 19, 2021