DEPARTMENT OF CHEMISTRY

CHEM-GA 2673 Professional Development in the Sciences
SYLLABUS

Fall 2018

Course Description: The course is intended to provide students and postdocs with a forum for discussion of various aspects relevant to their careers here at NYU as their future careers as responsible science professionals. The class will meet once per week on Friday for approximately two hours, with round-table discussions about topics ranging from ethics in scientific publication to safety to federal grant policies to teaching undergraduates.

Course Web Site: See NYU CLASSES for course details

Lectures: Friday 1:00 PM – 3:00 PM

Location: Location: TISC_LC11

Instructor: Michael D. Ward (MDI laboratories, Brown 554, mdw3@nyu.edu)

Textbook: None

Reading Material: We will rely on material in the literature, case studies, and other public domain sources, as well as NYU content related to the training of graduate students and Responsible Conduct in Research (RCR). Material will be made available on the CLASSES site for the course.

Enrollment: First-year Chemistry graduate students and new postdoctoral research associates.

Grading: There will be no graded assignments or examinations. Students are expected to review all reading material provided by the instructor and participate actively in the discussion of all topics. Students are encouraged to bring relevant material to class and participate actively in class. New postdocs are required to attend the RCR sessions, and are invited to attend other sessions and offer advice to graduate students from their experiences.

Absences: Attendance is MANDATORY for all Department of Chemistry first-year graduate students, including NYU Abu Dhabi and NYU Shanghai students. Students and Postdocs must sign the attendance audit sheet at the beginning of each class. Graduate students missing more than two sessions without a documented and justifiable reason will fail the course. Postdocs and graduate students missing more than two RCR sessions will be required to complete the University RCR certification, regardless of the reasons for the absences.

Course Objectives: The course is intended to provide students and postdocs with a forum for discussion of various aspects relevant to their careers here at NYU as well as their future careers as responsible science professionals, while offering basic
training in Responsible Conduct in Research (RCR) and scientific integrity. The contents of this course fulfill the RCR requirements mandated by NYU and the Federal government so that graduate students and postdoctoral research associates are permitted to conduct research when supported on Federal grants. Graduate students will receive an RCR certificate on September 1 of the following academic year, after completion of their first summer research term. Postdocs will receive an RCR certificate immediately following the course.

NOTICES
(1) Because the course schedule includes guest speakers, last-minute changes to the schedule are possible. Notifications will be sent to all students through the CLASSES site.
(2) Classes required for Responsible Conduct in Research Certification are indicated by (R). ALL graduate students, including NYU Abu Dhabi and NYU Shanghai students, and recently arrived postdocs must attend the RCR sessions to receive certification, which is required for financial support through federal grants.
(3) Graduate students, including NYU Abu Dhabi and NYU Shanghai students, are expected to attend ALL sessions.
(4) Graduate students are encouraged to attend career workshops (often with pizza!) that will be scheduled in evening hours throughout the semester, usually with the Department of Chemistry Chemists Club Chapter. Events are updated regularly at www.thechemistsclub.org. Postdocs also are invited to these events.

SCHEDULE OF TOPICS

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic (R = RCR approved and required)</th>
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<tr>
<td>September 7</td>
<td><strong>Challenges and success in graduate school.</strong> An introductory overview of graduate education in the</td>
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<td>(R)</td>
<td>sciences and its goals. General description of the academic environment in which graduate work is</td>
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<td>conducted, the graduate program in Chemistry, and the common challenges faced by students as they</td>
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<td>embark in the new experience of graduate research and transition to independent researchers.</td>
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<td>Balancing teaching and research, and time management in graduate school. Introduction to NYU</td>
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<td>resources for health and wellness. How to avoid the pitfalls of putting the urgent in front of the</td>
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<td>important. Responsibilities as a mentor and a mentee. <strong>Facilitator: Mike Ward</strong></td>
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<td>September 14</td>
<td><strong>Research Fellowships and Proposals.</strong> A Roundtable on fellowship and grant opportunities with</td>
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<td>Department NSF Fellows, including a discussion of developing competitive scientific proposals, from</td>
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<td>the conception of the idea to anticipating unexpected results. Formulating objectives and hypotheses,</td>
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<td>articulating significance, and developing a research plan. If time permits, a discussion about</td>
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<td>responsibilities, credit, and authorship in collaborative research from the student perspective.</td>
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<td><strong>Guest Speakers: NSF Fellows Cicely Shillingford, Brismar Pinto-Pacheco.</strong></td>
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<td>September 21</td>
<td><strong>Safety in research and instructional laboratories.</strong> Discussion of the safety aspects of conducting</td>
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<td>and leading chemical experiments in the research and instructional laboratories. Protective</td>
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<td>equipment and emergency response procedures. University policies and resources for the safety</td>
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<td>training of research personnel. This session is intended to better prepare graduate students for</td>
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<td>research rotations and thesis research, as well as introduce new postdocs to safety</td>
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practices in the Department. Guest Speaker: Keegan Garcia, Department of Chemistry Director of Research Laboratories.

**September 28 (R)**  
**Federal funding.** Principles of federal grants. A general overview of the federal agencies and the mechanisms used to support scientific research. Rules governing grant writing and the policies regulating the use of federal funds in laboratory research. Round Table on Guest Speakers: Ms. Nancy Denau, NYU Office of Sponsored Projects, Ms. Jelena Nemaric, Grants Administrator, Department of Chemistry.

**October 5**  
**Teaching General Chemistry.** An overview of the structure and operation of the General Chemistry laboratory courses, instructional resources available, and how to communicate, teach and manage large groups of students in a laboratory setting safely and effectively, with attention on issues peculiar to first-year students. Preparing and handling quizzes and homework. Recognizing stress in students and dealing with difficult situations, including a discussion about roles and responsibilities of instructors and students, as well as instructor-student boundaries. Guest Speakers: Dr. Zhihua An and Stephanie Geggier.

**October 12 (R)**  
**Scientific integrity and misconduct I: Fraud.** Ethical behavior in scientific research, focusing on examples of scientific integrity and fraud. Guest Speaker: Ivan Oransky, NYU School of Journalism, Author of Retraction Watch (http://retractionwatch.com).

**October 19**  
**NO CLASS**

**October 26**  
**The Story Behind the CV.** Have you ever wondered what your advisor struggled with as a graduate student? Every scientist has a unique pathway and life story, and those are seldom smooth and straight. How do you deal with your own and others' expectations, with bad advisors, and with impostor syndrome? How do you keep yourself motivated? Wei Ji Ma will tell his "unofficial" story of struggles, failures, detours, and doubts, and then guide a conversation about the human factors that are universal undercurrents of working in academia but that too often remain unspoken. Guest speaker, Professor Wei Ji Ma, Department of Psychology and the Center for Neural Science. See the series website at www.growingupinscience.com and an article in Science.

**November 2 (R)**  
**Title IX and thorny issues.** Guest Speaker: Shakera Turi, Deputy Director, Office of Equal Opportunity, Office of the President.

**November 9 (R)**  
**Scientific integrity and misconduct II: Plagiarism.** What is plagiarism, "the scourge" of academia, and why is it an unethical practice? How does it differ from copyright infringement and theft? What are the consequences of this most prevalent form of academic dishonesty, rather than data fabrication or falsification, in the scientific community? Procedures for handling allegations of plagiarism in the classroom. Guest Speaker: Audrey Wolfson Latourette, Distinguished Professor of Business Law, Stockton University.

**November 16**  
**Teaching Organic Chemistry.** An overview of the structure and operation of the Organic Chemistry laboratory courses, instructional resources available, and
how to communicate, teach and manage large groups of students in a laboratory setting safely and effectively, with attention on issues peculiar to second-year students enrolled in a course often viewed as a gateway. Preparing and handling quizzes and homework. Recognizing stress in students and dealing with difficult situations, including a discussion about roles and responsibilities of instructors and students, as well as instructor-student boundaries. Guest Speaker: Dr. John Henssler, Department of Chemistry.

November 23  
Thanksgiving Recess

November 30 (R)  
Scientific integrity and misconduct III: Pathological Science.  
Pathological Science vs. intentional falsification and fabrication. Procedures for handling allegations of scientific misconduct. Case studies and ramifications of misconduct. Recognizing conflicts of interest. Data management, and Federal policies on retention of and access to research data. **Facilitator: Mike Ward**

December 7 (R)  
Publication and peer review (or not). The importance of disseminating your research, in scientific journals and other venues. Manuscript preparation and an overview of the editorial process and what happens to a manuscript after it is submitted. A general description of the publication and peer review process, as well as the ethical responsibilities of all parties involved. Emerging alternative mechanisms for publishing scientific results also will be discussed, ranging from open access journals to social media. **Facilitator: Mike Ward**

EVENING CAREER SESSIONS with the Chemists Club  
Times and Locations to be announced

Some resources (more to be added during the course and made available on CLASSES)

- DHHS Office of Research Integrity (http://ori.hhs.gov/)
- ‘The lab’ interactive movie on research misconduct (http://ori.hhs.gov/thelab)
- Website companion (http://www.scientificintegrity.net/)
- NSF Graduate Research Fellowship Program (https://www.nsfgrfp.org)
- NIH training grants (https://researchtraining.nih.gov/programs/training-grants)
- Retraction Watch (http://retractionwatch.com/)

**Academic Dishonesty**

This is not as relevant to this course as a more conventional one, but most of you are new to NYU and you should be aware of key policies and guidelines pertaining to academic honesty. Academic dishonesty is incompatible with the practice of science or any profession. If evidence of dishonesty is found, the policy of the Graduate School of Arts and Sciences will be followed. This includes any form of
plagiarism, copying, collusion or cheating during an examination of any kind. All such cases are reported to the Director of Graduate Studies. University policy states: “Students who engage in such behavior will be subject to review and the possible imposition of penalties in accordance with the standards, practices, and procedures of NYU and its colleges and schools. Violations may result in failure on a particular assignment, failure in a course, suspension or expulsion from the University, or other penalties.” If suspended or expelled from the University, a notation will be made on your record as to the cause. A notation is very SERIOUS, as it could translate to a barring of entry to a professional school of any kind, e.g. medical school, graduate school and, possibly, difficulty in landing a job.

Disabilities
Students with Disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of NYU to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Center for Students with Disabilities (CSD) (mosescsd@nyu.edu) as soon as possible. Any student who needs a reasonable accommodation based on a qualified disability is required to register with the CSD for assistance. CSD will send the course instructors official notification of your accommodation needs. Please make an appointment with the instructor to discuss the accommodations and how course requirements and activities may impact your ability to fully participate.

Classroom Etiquette
Courteous and civil behavior is expected and anything apart from that will not be condoned. A university exists for the free but critical exploration of ideas and developing understanding of a myriad of topics. This can only be achieved through respect for the institution itself and among the scholars that comprise it. Anything other than polite (which does not exclude passionate or spirited debate) behavior is inexcusable. The fundamental rule is simple: Be considerate of others in the classroom. In order to prevent distractions, to allow others to concentrate on proceedings, and to make learning as efficient and facile as possible, certain proscriptions are necessary:

- No foods, soft drinks (water is OK), etc. are allowed in the classroom. No food or water is allowed in the laboratory (see the laboratory syllabus for more details).

- Gum and (need I say this) tobacco chewing is prohibited.

- Any distraction to others, such as conversation, electronic devices, etc. is not acceptable.

- Unless otherwise allowed by the instructor, NO CELL PHONES OR LAPTOPS are permitted in this class. Silence and store your cell phones before class. If your cell phone makes a disturbance, you will be asked to leave the class and you will risk losing attendance credit.