Fall 2017
Course Number: FRSHWTR-690
Undergraduate Seminar in Freshwater Sciences:
Detecting the New Normal: Long Time Series in Large Water
2 credits; Undergraduate

Instructors: Drs. Russell Cuhel and Carmen Aguilar
Offices: GLRF 146 (Cuhel) and 2031 (Aguilar)
Contact Information: 414-382-1711 (Cuhel); rruhel@uwm.edu
414-382-1755 (Aguilar); aguilar@uwm.edu
Office hours: TBA;
Course Meeting: One 100-minute session per week; Wednesday 1730-1910h
Location: Seminars in GLWI Ballroom; Alternate meetings in 3093 or suitable for size
Final Exam: TBD

The concept of this seminar course is to introduce students to leading professionals of
diverse disciplinary interests in Aquatic Sciences. Speakers will be leaders engaged in practice of
interdisciplinary time series analysis of large water bodies with substantial momentum and/or
inertia, in a range of physical venues including marine and freshwater coastal and open water
study sites. Every disciplinary perspective advertised by the School of Freshwater Sciences will
be applicable to each and every speaker and topic area of the course. Speakers will “be
themselves” and talk on any subject area of their expertise: it is the mission of the course to
incorporate the material into a holistic view using local or regional examples.

The class will discuss how the topic area integrates into a large ecosystem context, using
Lake Michigan dynamics as a point of example. Following the speaker’s presentation, a round-
table discussion with the speaker will extend the presented work into speculative applications to
regional aquatic ecosystems. Each student will host or co-host one of the speakers at their talk, as
introducer (undergraduate) or post-talk moderator (graduate).

Learning Outcomes - Objectives:
Students will surmount cognitive challenges of disciplinarity by visualizing, verbalizing, and
constructively interacting with each different topic from their many individual points of view.
Instructors will provide examples or conceptual stages upon which interdisciplinary thought may
be initiated. Every participant will have opportunity to apply their specific knowledge to the
biweekly subject at hand.

Students will:
learn and appropriately use vocabulary from disparate aquatic science disciplines.
gain knowledge about aquatic systems ranging in size from experimental lakes to open ocean
gyres to fully grasp the scale and application of large aquatic systems to regional and
global interaction with weather and human resources.
learn similarities and differences of import between freshwater inland seas and marine coastal
and open basin environments.
discover important considerations for research practices and programs that depend on location
and scale.
develop greater facility in discussion of research with external and local scientists in areas outside of their comfort zone.
learn how to seek knowledge about specific individual scientists and to put their work into differing aquatic ecosystem perspectives.
begin to integrate research topics into multidisciplinary, ecosystem scale vision.
develop learning-mentoring relationships among themselves, the speakers, and the instructors as they work together to elaborate topics from different perspectives. Undergraduate-graduate student teams will be formed to investigate, summarize, and introduce each speaker’s topic.

Resources:
The material will be provided electronically – D2L site. This will include the required reading and the readings for the individual speakers.
Instructors will provide classroom and personal counseling on methods for finding information beyond the scientific literature as it pertains to each speaker.

Required Reading:
Each topic area will include two papers by the topical speaker and one seminal paper in the field recommended by each speaker. These 18-21 papers will provide the basis of the semester’s study, and will vary with the topic area and invited speaker. Their citations cannot be provided until the speakers have been confirmed and have identified their specific resources. They are predominantly peer-reviewed journal articles and/or book chapters.

Schmidt, G. 1998. All that is labeled data is not gold. EOS, 14 July 1998.

Recommended Reading:

Course Requirements and Grading:
There are 14 class meetings with content (not study or exam days) during which each student is expected to participate. During the class session prior to each speaker’s presentation, an undergraduate student (or pair of students) will provide the class with an introduction to the speaker based on resumes and vitae that the speaker provides and host student research on personal and professional development of the speaker. Undergraduate students will produce a 1-page, approximately 3 minute speaker introduction once during the course, or more often for extra credit.

Seminar – Detecting the New Normal: Long Time Series in Large Water, Fall 2017
Attendance and discussion participation: 56% = 56pts
  Attendance * 2 = points up to 28 (14 meetings * 2pts): you come in on time
  Each meeting with pertinent oral contribution = 2 pts up to 28 pts: you talk in class
“Reflections” paragraphs, contributed after the speaker’s visit: 3 pts per speaker (18-21 pts possible); approximately ½ typed page: you identify learning outcomes from the speaker’s visit
Student-led presentation familiarizing the class about invited speaker’s background
  2-3min oral introduction of speaker’s professional development: 20% = 20 pts
Summary paper a short written paper that suggests a study involving the student, one speaker, and one faculty/staff from UWM-SFS: 30% = 30 pts
Standard 91-100 = A, 81-90 = B, 71-80 = C, 61-70 = D, <61 = F
These sum to 127%, so that successful completion of semester activities eliminates need to take a final exam.

Schedule FALL 2017: currently assumes Wednesday sessions 1730-1910h

<table>
<thead>
<tr>
<th>MEETING</th>
<th>DATE</th>
<th>TOPIC</th>
<th>Presenter</th>
<th>Materials due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sep 6</td>
<td>First day-Syllabus-General intro</td>
<td>Instructors</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sep 13</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sep 20</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sep 27</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Oct 04</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Oct 11</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Oct 18</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Oct 25</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Nov 01</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Nov 08</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Nov 15</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Nov 22</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Nov 29</td>
<td>Seminar and discussion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Dec 06</td>
<td>Student presentation and discussion:</td>
<td>Grad student: research Undergrad: intro</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Dec 13</td>
<td>Seminar and discussion:</td>
<td>Exam week</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Each student will be responsible for presenting material related to one speaker. A team of graduate-undergraduate students will coordinate discussion of a specific speaker, with the graduate student leading a PowerPoint-based discussion and the undergraduate providing a 1-page summary of the speaker’s background and research. The same team will introduce the speaker and moderate the seminar question period at the speaker’s session.

Seminar – Detecting the New Normal: Long Time Series in Large Water, Fall 2017
Attendance Policy:

Attendance at speakers’ presentations is imperative as neither the content nor the interactive atmosphere will be available elsewhere. Due to the nature of speaker-based programming, late assignments will not be accepted for speaker introductions (grade = 0). For other assignments each day late will result in a 5% demotion.

Missed Exam Policy: There are no make-up exams except for extreme emergencies which require official documentation. In such an event, contact us as soon as possible to discuss the problem. An un-excused absence will result in lost points for that exam. Policies regarding final examinations can be found at the following: http://www.uwm.edu/Dept/SecU/acad%2Badmin_policies/S22.htm.

Academic Misconduct: In this course, you are expected to perform to the best of your ability in an honest manner. Cheating, plagiarism, or other acts of misconduct will result in a severe penalty to you, as per University of Wisconsin System Chapter 1. http://www.uwm.edu/Dept/OSL/DOS/conduct.html Plagiarism is a particular concern: many students seem unclear about what it involves. I recommend that you read: http://www.plagiarism.org/learning_center/what_is_plagiarism.html because ignorance is not acceptable as an excuse.

Other University Policies: Various policies related to this course can be found on the Secretary of the University’s website at http://www4.uwm.edu/secu/SyllabusLinks.pdf

Other Campus Policies

General campus policies that apply to this course are listed on the Secretary of the University’s website: http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf

Investment of Time:

<table>
<thead>
<tr>
<th>Hours</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Face time for class and seminar meetings</td>
</tr>
<tr>
<td>42</td>
<td>Reading 18 professional papers (3 per speaker) plus required literature</td>
</tr>
<tr>
<td>6</td>
<td>Preparation of ½-page reflections from each speaker’s presentation</td>
</tr>
<tr>
<td>8</td>
<td>Preparation of material for leading class discussion on speakers topic</td>
</tr>
<tr>
<td>2</td>
<td>Final presentations by graduate students to class</td>
</tr>
<tr>
<td>6</td>
<td>Post-presentation societal interaction with visiting speakers (Networking)</td>
</tr>
<tr>
<td>96</td>
<td>Total investment for 2 credits</td>
</tr>
</tbody>
</table>