Dr. Anthony Siccardi  
E-mail: Asiccardi@ag.tamu.edu  
Phone: (361)-937-2268

Lecture: 5:30-8:00 p.m., Wednesdays (TBD)  
Laboratory: 8:05-10:00 p.m., Wednesdays (BH-127)  
Office Hours\textsuperscript{1}: 4:30-5:30 p.m., Wednesdays (TBD)

Course description:  
This course identifies important chemical concepts as they apply to the aquatic environment, emphasizing their use in management of aquatic culture systems. Lectures will focus on physical and chemical properties of water, and cycles of major nutrients such as C, N, P, and S. Other topics covered will include management of water quality in various culture systems. Knowledge gained in formal lectures will be tested by interpretation of term field trials.

Student learning outcomes:  
After taking this course, the student will:
\begin{enumerate}
\item Understand how various chemicals affect aquatic life and how these chemicals move and “cycle” through the environment.
\item Evaluate change in the chemical environment of specific study sites. This knowledge will be assessed in periodic examinations.
\end{enumerate}

Course Materials:  
The following books are suggested for supplemental reading and can be found at the library:
\begin{enumerate}
\item Boyd, C.E. 1984. Water Quality in Warm-water Fish Ponds. Alabama Agricultural Experiment Station, Auburn University, 359 p.
\item Boyd, C.E. 1987. Water Quality Management for Pond Fish Culture. Elsevier Science
\item Sumich, J.L., 1991. An Introduction to the Biology of Marine Life. 7\textsuperscript{th} Edition, W.C.
\end{enumerate}

\textsuperscript{1} An appointment can be scheduled for other time upon request
Grading:

Your final grade is based on the accumulation of points according to the following weights (%):

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent of Final Grade</th>
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<tbody>
<tr>
<td>Lecture Exam I</td>
<td>23</td>
</tr>
<tr>
<td>Lecture Exam II</td>
<td>23</td>
</tr>
<tr>
<td>Lab Report (Term Project)*</td>
<td>30</td>
</tr>
<tr>
<td>Final Exam**</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
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*A description of the lab portion of the class is described below.

**Entry to the classroom will be closed on the day of final exam as soon as the first student to complete an exam has left the room. Students absent or arriving after room closure will receive a zero for the exam.

Grading Scale:

A = 100-90 points, B = 89-80 points, C = 79-70 points, D = 69-60 points, F < 60 points.

Class Participation:

**Attendance is mandatory.** Students are expected to attend all classes and labs. Should you miss a lecture or laboratory session, it is **your** responsibility to find out what you missed, get notes, learn about changes in the syllabus, etc. There are no excused absences. A missed grade will result in a score of ‘0’ for that assignment. Students with a university approved scheduled absence (athletics, military duty, etc.) **must** contact the lecture instructor well in advance of a scheduled absence. Exams may be taken early in those specific cases. Students who do not arrange to take exams ahead of time will not be eligible for this special consideration. A written excuse from the university department involved is required.

Failure to attend more than two class lectures/lab without the instructor’s prior consent will constitute a loss of 10 points from the student’s final grade. It is the student’s responsibility to check their own personal schedules to insure class attendance.

Lab Sections & Instructors:

There is only one laboratory section for this course. Laboratory instructor for this course is Dr. Anthony Siccardi ([Asiccardi@ag.tamu.edu](mailto:Asiccardi@ag.tamu.edu) 361-937-2268).
Academic Integrity:
All students are expected to conform to college level standards of ethics, academic integrity, grammar and spelling; review the appropriate pages of the TAMU-CC catalog and TAMU-CC student handbook. Failure to comply with these rules will result in dismissal from the course.

Academic Dishonesty:
Cheating in any form will absolutely not be tolerated. This includes asking for or providing help on an exam or quiz, plagiarism, or basically doing anything that substitutes one person’s work for another’s. Cases of academic dishonesty will be dealt with severely. Students caught cheating will receive a grade of ‘F’ for the course and the offense will be reported to the student affairs office.

Grade Appeals:
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Disabilities & Veterans Accommodations:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Tentative Course Outline:
This schedule is subject to changes, which will be announced in class.

Jan. 11 Lecture: Syllabus, Overview of physical properties of water and how they affect aquatic life.
Laboratory: Laboratory project orientation, discussion of potential topics/sites, overview of proper use/care of analytical equipment.

Jan. 18 Lecture: Overview of chemical properties of water and how they affect aquatic life.
Laboratory: Training on equipment to be used for the term project.

Jan. 25 Lecture: Nutrient cycles (Carbon, Nitrogen, Phosphorus and Sulfur) and their relationship to the culture of aquatic organisms.
Laboratory: Set-up of projects in the field.

Feb. 1 Lecture: Nitrogen cycle, nitrogenous compounds (measurement and control in aquatic systems).
Laboratory: Data assimilation.

Feb. 8 Lecture: First Term Exam: (Covers all material up to this point).
Laboratory: Data assimilation.

Feb. 15 Lecture: Dissolved oxygen (measurement/control/affects on aquatic life).
Laboratory: Data assimilation.

Feb. 22 Lecture: Heavy metals/toxic compounds (bio-accumulation).
Laboratory: Data assimilation.

Feb. 29 Lecture: Primary productivity in aquaculture ponds (measurement/development).
Laboratory: Data assimilation.

Mar. 7 Lecture: Second Term Exam: (Covers all material covered since exam 1).
Laboratory: Data assimilation.

Mar. 14 Lecture: No Class (Spring Break)
Laboratory: No Laboratory (Spring Break)
Mar. 21
Lecture: Pond fertilization.
Laboratory: Data Assimilation.

Mar. 28
Lecture: Pond sediments.
Laboratory: Data Assimilation.

Apr. 4
Lecture: C:N Ratio/Development of bioflocs.
Laboratory: Data Assimilation.

Apr. 11
Lecture: Pond water quality management.
Laboratory: Data assimilation.

Apr. 18
Lecture: Pond water quality management/class review.
Laboratory: Data wrap-up/analysis.

Apr. 25
Lecture: Project Presentations
Laboratory: Project Presentations

May. TBD
Final Exam.

FAMA 5421 – CHEMISTRY OF NATURAL WATERS LABORATORY
Spring Semester, 2012

Lab Description:
To gain meaningful hands-on experience in acquiring, analyzing, and reporting scientific data relevant to aquaculture water quality issues. Particular emphasis will be given to gaining familiarity with analytical methods and equipment common to the commercial industry. Also emphasized are the concepts of data collection and analysis, and the practical decision-making involved in management of aquatic systems. As in real life, to accomplish this, students will be assigned research projects in the field for which they will assimilate and analyze data and report findings.

Student learning outcomes:
After taking this course, the student will:
1. Be able to determine the concentrations of various chemicals in the aquatic environment.
2. Evaluate change in the chemical environment of specific study sites. This knowledge will be assessed in a term project.

LAB SAFETY: Some lab procedures will require the use of approved chemical safety goggles and approved lab coats; these items are available at the university bookstore. Prior to attending labs you will be required to attend a lab safety lecture. If you do not abide by standard lab safety practices within 2 weeks of your first appearance in lab, you will be administratively dropped from the FAMA 5421 class.
LAB/TERM PROJECT GRADING: The lab segment of the course generates 30 points out of the 100 total points for FAMA 5421. These 30 points are included with lecture points for the determination of final course grade. Projects grading will be divided between report (20 pts) and presentation (10 points). Projects will be graded on the basis of diligence of data assimilation, appropriate nature of analysis of results, completeness of report, and quality of presentation.

GENERAL: It is likely that students will conduct their research at one of the following facilities: Texas AgriLife Research (Port Aransas or Flour Bluff), Texas Parks and Wildlife (Flour Bluff), UTMSI Fisheries and Mariculture Laboratory (Port Aransas) and the Texas State Aquarium. The course instructor will contact representatives of these institutions in order to arrange access to facilities (e.g., insurance, gate passes, keys, etc.).

Reports will follow the format of the Journal of the World Aquaculture Society: title page (1 page), abstract (200 words, separate page), introduction (background and relevance, 2 pages), objective(s) (1 paragraph), methods and materials (2 pages), results (1-2 pages), discussion (2 pages) and literature cited (typically 1 page). The report should be written in double space. Tables and figures should be provided after the Literature Cited section. No more than two tables or figures per page will be allowed. The presentation will be 12 minutes in length using PowerPoint™ with 3 minutes for questions (typical conference format). Presentations should be conservative in appearance and utilize a minimum of animation.