Masters of Marine Resources Management Self-Study for Academic Program Review
Spring 2015

Texas A&M University at Galveston

DEPARTMENT OF MARINE SCIENCES
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Acknowledgements

This Self-Study Report was prepared by faculty from Marine Sciences with contributions from Nicole Kinslow from the TAMUG Office of Graduate Studies. A draft of the self-study was circulated to MARM faculty for comments on February 4, 2014. The final version incorporates numerous suggestions provided by faculty members.
Charge to the Peer-Review Team

The charge below was presented to our site-visit, peer review team during the Spring of 2014. It is reproduced here to provide a context for the remainder of the document.

Thank you for assisting us with the continuous quality improvement of our graduate program, the Masters in Marine Resources Management (MARM). The Academic Program Review (APR) to which you are contributing is part of a periodic review of all Texas A&M University academic programs. APR affords opportunities to assess the standards of our program and to learn from peer review team members’ experiences with similar programs. In addition to the charge to the peer review team, this document provides you with a brief overview of the MARM program offered by the Department of Marine Sciences.

Peer-Review Team Charge

The review team is charged with examining the MARM program and making recommendations that we may use to inform continuous quality improvement processes. Resources that you will have for this assessment are a self-study to be completed by the department, other materials that may be provided by the department and our office, information you gain through personal interactions while visiting Texas A&M University at Galveston, and any additional information that you request. Within the broad charge of informing continuous quality improvement are the following specific questions that we would like you to address:

1) While evaluating the program, please consider the resource context within which the Department operates (both human and fiscal) and the absolute level of support the department receives from the university, please comment on the overall efficiency and effectiveness of the Department’s use of these human and fiscal resources in pursuit of its mission.

2) Please address the following questions about assessment of learning outcomes:
   a) Has the department identified specific learning outcomes for its educational programs?
   b) Please comment on the appropriateness of these learning outcomes for this department.
   c) Does the curriculum and instruction afford students opportunity to achieve the learning outcomes?
   d) Does the department have a written plan for assessment of its identified learning outcomes? Is that plan of acceptable quality? Are the metrics used for assessment appropriate and of acceptable quality?
   e) To what extent is the Department successful in achieving its learning outcomes?
   f) Does the learning outcome assessment process inform continuous quality improvement?

3) Please share with us any strengths, weaknesses, opportunities, and threats related to the current and future quality of this academic program.

4) Please comment on the scope, efficacy, and desirability of current and potential collaboration of this program with other programs and groups, both on campus and off.

5) Please provide us your team’s judgment on the national ranking of this program, as a percentile rank. For example, is this program in the top 5% of programs in parks, recreation, and tourism nationally? Top 10%? Top 50%?
6) Please address the program’s contributions to two guiding strategic initiatives developed by Texas A&M University. The first of these is a document developed in 1999, entitled Vision 2020: Creating a Culture of Excellence, and identifies twelve specific areas of focus for Texas A&M’s future. The other is the more recent Action 2015, intended to build on our gains made since the inception of Vision 2020. Both documents may be referenced at http://provost.tamu.edu/strategic-planning-2010. Summaries of both documents will be provided upon your arrival at Texas A&M University.

Overview of the Program:

The MARM program provides students with a broad understanding of coastal and ocean management and prepares students for careers in the management of marine resources. This program looks at marine natural resources from an ecological and policy/management/law perspective as well as an international perspective. The program seeks to prepare graduates to be solidly grounded in management and science focused on the marine environment. Thus, each student takes graduate courses in both realms.

We look forward to meeting with the review team for Marine Resources Management. If you have any questions or require additional information prior to your visit, please contact Dr. Kyeong Park, Department Head, Marine Sciences Department, at parkk@tamug.edu. Thank you.
Executive Summary

This self-study provides a summary and analyses related to the Academic Program Review of the Department of Marine Sciences’ Masters of Marine Resources Management (MARM). The MARM program is located on the campus of Texas A&M University at Galveston (TAMUG). TAMUG is a special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering, and business and for research and public service related to the general field of marine resources. Enrollment at TAMUG increased from 551 in 1987 to a record enrollment of 2,174 in fall of 2013.

In 2002, the MARM became the first graduate-level degree to be approved by the Texas Higher Education Coordinating Board to be offered at the Texas A&M University at Galveston campus. The MARM program provides students with a broad understanding of coastal and ocean policy and management and prepares students for careers in the management of marine resources. This program looks at marine natural resources from an ecological and policy/management/law perspective as well as international perspective.

The program includes both a non-thesis and thesis option. The non-thesis option consists of 36 hours of which 24 are required core courses. Twelve additional hours are taken as electives according to students’ particular professional interests. Students who opt to write a thesis take 22 hours of the core curriculum (MARS 680 is not included) and take an additional 14 hours of electives of which six credits may be used toward original research for the thesis option degree. Students in the MARM program also participate in multiple research units on campus including the Institute for Sustainable Coastal Communities, the Center for Texas Beaches and Shores, and the Integrated Coastal and Ocean Management Lab.

The program has a strong record particularly regarding faculty activity, student retention, and graduates’ career success:

Since 2007, the MARM program has graduated 66 students which is the equivalent to approximately 10 students per year. The average time to graduation is 2.5 years.

There are 27 core faculty associated with the MARM program, primarily based in the Marine Sciences Department. Since 2007, between 9 and 13 faculty members have taught MARM-specific courses during the academic year.

Faculty-student ratios have remained relatively stable between 2007 and 2013. Unduplicated ratios, the average based on total students enrolled by total faculty teaching 600 level MARM sections, range from 1:2 to 1:3 during the academic year, while headcount ratios, the total enrollment in 600 level sections by total faculty teaching in those sections, average approximately 1:7.

Over the last three years, MARM faculty members have collectively published 206 peer-reviewed publications (76, 55, and 75 respectively) generating over 8,800 scientific citations.
Over the last three years, MARM faculty members have submitted 128 proposals generating $3,281,338. These funds support multiple graduate students’ participation in these research activities.

The MARM has experienced a stable enrollment of 31-32 students per year over the last five years. Since the fall semester of 2007, graduation rates for the MARM program have averaged approximately 66 percent.

The demand for graduates in industry, government, academia, and non-governmental organizations has never been stronger. Federal agencies employing graduates include the U.S. Coast Guard, the U.S. Army Corps of Engineers, NOAA, Sea Grant, and the Environmental Protection Agency. State agencies include the Texas General Land Office, Texas Parks and Wildlife, and the Texas Commission on Environmental Quality, among others. Industries and companies employing graduates include oil and natural gas, environmental consulting, ports, and tourism. These organizations have identified the need for a degree which focuses on national and international ocean resource law and policy; coastal zone management and planning; physical and geochemical marine resources management strategies; and fisheries management.

Specifically, in a recent survey of 57 MARM graduates since 2008, respondents reported employment positions in a diversity of sectors including oil and gas companies, environmental consulting firms, U.S.A.C.E., New England Aquarium, Texas Parks and Wildlife, Ohio Sea Grant, United States Coast Guard, and Michigan Sea Grant, among others. Several graduates have also entered PhD programs.

Students participating in the MARM program over the last seven years have been predominantly white and female. Over the past five years, the MARM program has expanded from one in which its students were primarily full-time working professionals attending part-time to include full-time students with multiple research opportunities.

The MARM program is aligned in multiple ways with the Texas A&M University document Vision 2020: Creating a Culture of Excellence, and the Texas A&M University Academic Master Plan. The design of the program is conducive to the learning outcomes noted in the master plan for all master’s graduates.

As noted earlier, a wide array of faculty members contribute to the education of the MARM students. This includes teaching required as well as elective courses, serving on the graduate committees, mentoring their own MARM graduate students, and supervising the students as graduate teaching or research assistants.

Looking ahead, the program faces issues that are common to many programs as well as issues which are specific to the program itself. These include:

- Program staffing and leadership. The MARM program needs a dedicated faculty member to recruit new students to the program.

- Curriculum. The MARM program must always respond to changes in the job market. We want to ensure that the curriculum is responsive.
Finances. With a growing number of graduate students in the program, planning for financial support of these students is critical.

The MARM program has been very successful in preparing students for careers in the management of marine resources. With guidance from the peer review team, we hope that we can continue to improve our program in the coming years.
Introduction to the Program

Texas A&M at Galveston Campus

The Masters of Marine Resources Management (MARM) program is located on the campus of Texas A&M University at Galveston (TAMUG) (www.tamug.edu). TAMUG is a special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering, and business and for research and public service related to the general field of marine resources. The institution is under the management and control of the Board of Regents of the Texas A&M University System, with degrees offered under the name and authority of Texas A&M University at College Station (i.e., TAMUG is not a separate university but a branch campus of TAMU at College Station). Graduates receive a Texas A&M University diploma and the Aggie Ring.

The following provides a brief summary of TAMUG’s history:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>Statute passed by Texas state Legislature that “interested citizens” could establish “in one of the harbors of the State of Texas a Nautical School...”</td>
</tr>
<tr>
<td>1952</td>
<td>The Marine Laboratory established.</td>
</tr>
<tr>
<td>1957</td>
<td>Marine Laboratory of the oceanography department of Texas A&amp;M College authorized to move to a surplus building on Fort Crockett.</td>
</tr>
<tr>
<td>1958</td>
<td>Annual banquet held in Galveston to celebrate National Maritime Day. Committee established to help create a state maritime academy.</td>
</tr>
<tr>
<td>1959</td>
<td>Committee confronted with first major challenge: a 28-year-old legislative obstacle to creating a maritime school in Texas.</td>
</tr>
<tr>
<td>1961</td>
<td>State funds for the Texas Maritime Academy appropriated.</td>
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<tr>
<td>1962</td>
<td>The Texas Maritime Academy cadets started their first semester ever.</td>
</tr>
<tr>
<td>1963</td>
<td>The dedication of Fort Crockett campus postponed because of the assassination of President Kennedy.</td>
</tr>
<tr>
<td>1964</td>
<td>Fort Crockett campus dedicated.</td>
</tr>
<tr>
<td>1965</td>
<td>Cadets took first cruise aboard the renamed Texas Clipper. George Mitchell donated 100 acres on Pelican Island.</td>
</tr>
<tr>
<td>1966</td>
<td>Cadet Charter class graduates. Texas A&amp;M named a Sea Grant institution.</td>
</tr>
<tr>
<td>1970</td>
<td>The first structure on the new Pelican Island campus—a docking facility—to be completed.</td>
</tr>
<tr>
<td>1971</td>
<td>Everyone moved to Pelican Island and for the first time, freshmen (and sometimes sophomores) didn’t have to stay at the main campus.</td>
</tr>
<tr>
<td>1975</td>
<td>The Texas Coordinating Board approved a new bachelor of science program in marine biology.</td>
</tr>
<tr>
<td>1976</td>
<td>The first dormitory building and the student union opened.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
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<tr>
<td>------</td>
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</tr>
<tr>
<td>1978</td>
<td>The first on-campus outdoor athletic facilities officially opened.</td>
</tr>
<tr>
<td>1979</td>
<td>TAMU System Board of Regents renamed institution Texas A&amp;M University at Galveston. The $2.4 million classroom laboratory building opened for classes.</td>
</tr>
<tr>
<td>1982</td>
<td>Marine Fisheries was added to the campus curricula.</td>
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<tr>
<td>1983</td>
<td>Hurricane Alicia caused half a million dollars in damage to TAMUG.</td>
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<tr>
<td>1984</td>
<td>Propeller of a WWII seagoing tug installed on campus.</td>
</tr>
<tr>
<td>1985</td>
<td>First commencement ceremony held in Galveston.</td>
</tr>
<tr>
<td>1989</td>
<td>TAMUG in the US News &amp; World Report top-ten rankings for small colleges in the West for the first time.</td>
</tr>
<tr>
<td>1990</td>
<td>TAMUG began implementing its merger with the College of Geosciences at Texas A&amp;M University. Enrollment breaks the 1,000 mark.</td>
</tr>
<tr>
<td>1995</td>
<td>Anchor from Texas Clipper I was installed in the center of the quadrangle (to make way to the clock tower 8 years later).</td>
</tr>
<tr>
<td>1996</td>
<td>The Texas Clipper II embarked on its maiden voyage.</td>
</tr>
<tr>
<td>1997</td>
<td>First bachelor of arts program on campus approved.</td>
</tr>
<tr>
<td>2000</td>
<td>The bachelor of science degree in Ocean and Coastal Resources (OCRE) authorized.</td>
</tr>
<tr>
<td>2002</td>
<td><strong>TAMUG offers its first independent graduate degree, the Masters in Marine Resources Management.</strong></td>
</tr>
<tr>
<td>2003</td>
<td>Bracewell Clock Tower erected and dedicated.</td>
</tr>
<tr>
<td>2005</td>
<td>Stephen Curley's history of TAMUG Aggies by the Sea published.</td>
</tr>
<tr>
<td>2007</td>
<td>Texas Clipper deliberately sunk off Port Isabel Texas as an artificial reef by Texas Parks &amp; Wildlife.</td>
</tr>
<tr>
<td>2008</td>
<td>Sept. 10, TAMUG campus closes for hurricane evacuation. Sept. 12 (Friday), Hurricane Ike hit Galveston directly: Approximately ¾ of Galveston submerged in water. TAMUG relocated to College Station for remainder of fall semester, retaining more than 90 percent of its students.</td>
</tr>
<tr>
<td>2009</td>
<td>Jan. 20, TAMUG classes resumed in Galveston.</td>
</tr>
<tr>
<td>2011</td>
<td>The $42 million, 110,000 square-foot Ocean and Coastal Studies building opened.</td>
</tr>
<tr>
<td>2012</td>
<td>TAMUG celebrated 50 years.</td>
</tr>
<tr>
<td>2012</td>
<td>The General Rudder training ship arrives.</td>
</tr>
</tbody>
</table>

TAMUG is recognized nationally for academic excellence. The ocean-oriented academic programs are accredited regionally and professionally. Time Magazine’s Princeton Review lists TAMUG as among the top 650 colleges in the U.S. Only 8 other public colleges in Texas are included. Texas A&M University is fully accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). As a branch campus, Texas A&M
University at Galveston is included in that process. The Maritime Systems Engineering (MASE) Department is accredited by the Engineering Accreditation Commission and the Marine Engineering Technology (MARR) Department is accredited by the Engineering Technology Accreditation Commission, both of which are part of the Accreditation Board for Engineering and Technology.

A unifying trait of all TAMUG students is a desire to work and study near and in an ocean environment. Ocean voyages, sailing in Galveston Bay, beachfront experiments, and independent study complement the rigorous classroom experience at TAMUG’s island campus. The by-the-ocean campus environment enhances the unique curricular offerings. The atmosphere fostered by the faculty, staff, and students emphasizes the intimate relationship between the University and the sea. The Mitchell Campus, situated on the Galveston harbor and close to the confluence of the Galveston and Houston ship channels, has immediate access to the ocean and to estuarine areas including Galveston Bay. The Port of Galveston and Port of Houston are nearby, as are many Gulf Coast industries. Campus life is further enhanced by the cultural and social activities in Galveston. Galveston Island was once the financial center of the South. Today, the city has become a major tourist center with a strong representation of marine and maritime interests. College dances have been held in the Ashton Villa Ballroom (a restored 1859 mansion), in the Garten Verein (a restored octagonal dancing pavilion in Kempner Park) and aboard the Elissa, an 1887 three-masted, iron-hulled vessel, and the Colonel, a triple deck sternwheeler. The Grand 1894 Opera House, the Lone Star Amphitheater, and other local theaters provide the opportunity for TAMUG students to become involved in theater events. The new Moody Gardens Conference Center boasts the Southwest’s finest 3-D Digital IMAX Theater and a unique tropical garden pyramid biome. The city has several historical districts, museums, and musical groups including the Galveston Symphony Orchestra and the Galveston Beach Band.

Enrollment at TAMUG increased from 551 in 1987 to a record enrollment of 2,174 in fall of 2013. Students originate from 49 different states and the District of Columbia. Science and engineering majors number 75 percent of the student body; 43 percent are women; about 50 percent reported themselves to have been in the top 20 percent of their high school class. Fifty-seven percent of students plan to pursue a master’s or Ph.D. degree and about 65 percent receive some type of financial aid.

TAMUG offers ocean-oriented courses with excellence in business, oceanographic and physical sciences, biological sciences, engineering, transportation, and liberal arts. Degrees are awarded from Texas A&M University. Computer science and technical writing courses are taught across curricula regardless of a student’s major field. Several unique courses have been developed in response to the University’s marine orientation. For instance, "Literature of the Sea" looks at the sea through the works of great authors. "Introduction to Marine Sciences" introduces students to a number of disciplines through lectures, seminars, and industrial leaders’ presentations.

Texas A&M University at Galveston also houses the Texas Maritime Academy (TMA) which is one of six maritime academies in the U.S. and the only maritime academy located on the Gulf Coast. The TMA prepares graduates for licensing as officers in the United States Merchant Marine. The TMA provides an opportunity for students to learn how to operate and maintain an ocean-going vessel; in addition to classroom and field training during the regular school year, students sail aboard the TMA training ship during three summer cruises to gain practical experience in seapersonship, navigation, and operations. Cruises are varied to include Northern
Europe, the Caribbean, the Mediterranean, Canada, and the United States. At the conclusion of the program, Cadets are tested for their qualifications to become licensed as officers in the U.S. Merchant Marine and may seek employment in the field of marine transportation as a licensed Third Mate or Third Assistant Engineer.

Figure 1: Campus Organizational Chart

Department of Marine Sciences

The MARM program is housed within the Department of Marine Sciences (MARS) (see Figure 1, red box, http://www.tamug.edu/mars/), one of seven departments on campus. Students in MARS concentrate on the physical, chemical, and geological aspects of the marine, estuarine, and coastal environment. The coastal location of the campus provides students with the unique opportunity to acquire extensive hands-on field experience in addition to a solid base of academic instruction in chemistry, geology, physics, biology, and mathematics. Undergraduate programs include majors in Marine Sciences (MARS) or in Ocean and Coastal Resources (OCRE), as well as minors in Chemistry, Geology or Ocean and Coastal Resources. Graduate offerings include the degree in Marine Resources Management (MARM) with the faculty also supporting students in a number of other graduate degrees on our campus such as the Interdisciplinary Program in Marine Biology (MARB IDP) and the Maritime Administration Department’s Maritime Administration and Logistics degree; faculty also participate with graduate programs in conjunction with TAMU’s Departments. As of fall, 2013, there were 32
faculty in MARS with a variety of expertise, ranging from policy and planning to law and management to chemistry and geology (Figure 2).

**Figure 2: Marine Sciences Organization Chart**

**MARM Program**

In 2002, the Master of Marine Resources Management (MARM) degree became the first graduate level degree at TAMUG to be approved by the Texas Higher Education Coordinating Board. The MARM program provides students with a broad understanding of coastal and ocean policy, law, and management. This program looks at marine natural resources from both an ecological and policy/management as well as international perspective. Originally, the degree had been seen as an alternative degree for professionals working in marine/ocean/coastal organizations. In addition, the degree program addressed the needs of some science teachers seeking a degree outside the field of education.

Currently, this program draws both “traditional” graduate students and professionals engaged in management of our ocean and coastal resources. Both thesis and non-thesis options are available in this degree, with courses in economics, policy, law, and management well as physical, biological, and information science - all focused on our coasts and oceans. The demand for
graduates in industry, government, academia, and non-governmental organizations has never been stronger. Federal agencies employing graduates include the U.S. Coast Guard, the U.S. Army Corps of Engineers, NOAA, Sea Grant, and the Environmental Protection Agency. State agencies include the Texas General Land Office, Texas Parks and Wildlife, and the Texas Commission on Environmental Quality, among others. Industries and companies employing graduates include oil and natural gas, environmental consulting, ports, and tourism. These organizations have identified the need for a degree which focuses on national and international ocean resource law and policy; coastal zone management and planning; physical and geochemical marine resources management strategies; and fisheries management.

The program includes two permanent committees: The MARM Admissions Committee and the MARM Program Committee, both of which are comprised of MARS graduate faculty and the assistant department head. The former committee reviews and discusses each application to the program and then votes on whether to accept the applicant. The latter committee addresses problems as they arise and discusses potential changes to the program.

Facilities and Resources

The MARM program is housed in the Ocean and Coastal Studies Building (OCSB), opened in July 2010. This $53 million, 110,000 square-foot state-of-the-art building is the largest and best-equipped marine research facility on the Gulf Coast. It stands among the finest facilities of its kind in the nation, achieving a LEED Gold designation for environmental impact and energy efficiency. The OCSB supports some 40 faculty researchers and 100 graduate students. The research TAMUG scientists and students are pursuing is connected by a general theme that focuses on understanding, sustaining, and effectively managing ocean resources. The building also supports marine policy, law, and management studies including coastal resilience, human response to coastal disasters, international environmental standards, fisheries management, and sustainable coastal development. The OCSB has multiple spaces for MARM students working alone or in groups including cubicles, break-out rooms, and common spaces.

Students in the MARM program also participate in multiple research units on campus, including:

**Institute for Sustainable Coastal Communities**

The Institute for Sustainable Coastal Communities (ISCC) ([www.tamug.edu/ISCC](http://www.tamug.edu/ISCC)) is a joint initiative between the College of Architecture at Texas A&M University (TAMU) and Texas A&M University at Galveston (TAMUG). The institute can help prepare coastal communities to absorb, adapt and respond to disturbances such as hazardous events, hurricanes, coastal storms and flooding. The institute acts as a living laboratory to attract and leverage research activities of multiple centers on Texas A&M campuses in College Station and Galveston, while connecting with coastal community leaders and stakeholders about their roles in creating a resilient community. The institute works toward protecting the built environment as well as coastal systems by integrating research, teaching, and public outreach through the following:

- Sharing research findings with community decision makers, residents, and interested parties
- Fostering community participation in understanding coastal issues
● Providing knowledge that will help decision makers reduce hurricane/storm impact
● Offering information that will increase the ability of communities to recover after storms
● Provide knowledge about protect coastal natural resources and vulnerable populations

The Institute has nine computer workstations with various geospatial software and analytical capabilities, a secure special projects room for launching field work, and two dedicated rack servers for data storage and web services. A computer technician assigned to the servers provides support on projects.

**Center for Texas Beaches and Shores**

The Center for Texas Beaches and Shores (CTBS) at Texas A&M University at Galveston [www.tamug.edu/CTBS](http://www.tamug.edu/CTBS) was established in 1993 by the Texas Legislature to address beach erosion and wetlands loss throughout the state. The CTBS is dedicated to the conservation and protection of the Texas shoreline, bays, and waterways through innovative research in cooperation with government and private sector agencies. The Center is focused on developing a comprehensive, holistic approach to Texas coastal research and restoration solutions incorporating natural, economic, and political processes. The CTBS research lab houses 5-6 funded MARM students working on numerous projects. As of 2013, core faculty working on Center projects had over $3 million of external funding in effect.

**Integrated Coastal and Ocean Management Lab**

MARM students also participate in the Integrated Coastal and Ocean Management (ICOM) Lab [http://www.tamug.edu/mars/research/Index.html](http://www.tamug.edu/mars/research/Index.html) which conducts applied research and provides leadership intended to facilitate stewardship of resilient and persistent coastal and ocean ecosystems through adaptive environmental management. The ICOM Lab focuses on the process of analyzing and allocating both the spatial and temporal distribution of human activities to achieve environmental, social, economic, and ethical objectives. Strategies are eco-system based and include integrated and participatory characteristics involving multiple sector planning including mediation strategies that increase compatibility among stakeholders and reduces conflicts. The ICOM Lab hosts a weekly Graduate Research to Researcher (GR2R) meeting in which students share their research, any research problems, as well as discussing issues that may arise in their coursework. In 2012, the GR2R became an official “learning community.”

Overall, the MARM program is very much aligned with the strategic direction of the campus: to be a premier “special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering and business and for research and public service related to the general field of marine resources” (see Appendix A1 for more information). By training future professional and researchers in the field of marine resource management, the program, which has maintained a steady enrollment since its inception, contributes greatly to the mission and goals of the Galveston campus. While the MARM program has been a great success, there are several areas that could be improved. This self-study, the first in the program’s history, will help identify problem areas and generate specific strategies to improve the program.
Students applying to the Marine Resources Management program should have a broad-base science background with coursework in the following areas: biology, chemistry, physics, advanced mathematics, geology, oceanography, and economics. This degree was designed primarily for students with undergraduate degrees in physical or life sciences, though students in other majors who have significant coursework in physics, chemistry, geology, biology, and/or mathematics may also be considered for admission. Some previous exposure to oceanography or marine sciences is desirable, and an introductory course in economics, preferably microeconomics, is necessary. However, applicants without these foundations may supplement their background with leveling coursework (determined by the Admissions Committee) while enrolled in the graduate program. Applicants to the MARM program must first apply to Texas A&M University at Galveston, and then take additional steps to be admitted to their specific graduate program. MARM applicants need three letters of recommendation and must submit all transcripts and GRE scores. Each student must provide an essay that describes why s/he is interested in the program and what, if any, the focus area would be. Once an applicant’s materials are complete, the MARM Admissions Committee reviews the material submitted and votes to admit, not-admit, or qualifying admission which means that there is an additional requirement(s) that the student must meet before being fully admitted into the program such as successfully completing a leveling course. The Program Coordinator communicates with these students to ensure that those truly interested in the program – and who have the needed credentials – have appropriate application packages. In the last three years, the MARM program has received 70 applications for admissions. Of those, 53 (75 percent) have entered the program. Even though there has not been a particularly active recruitment effort for this program up to this point, the pool of applicants has been impressive and the number of actual graduate students admitted into the program has been in alignment with the Department of Marine Sciences’ capacity; with the new hires in the last year, however, there is now room for expansion of the program.

The Marine Resources Management program is a 36 hour degree. The program includes both a non-thesis and thesis option. The non-thesis option consists of 36 hours of which 24 are required core courses. Twelve additional hours are taken as electives according to students’ particular professional interests. Students who opt to write a thesis take 22 hours of the core curriculum (MARS 680 is not included) and an additional 14 hours of electives of which six credits may be used toward original research for the thesis option degree. For more information, consult the Texas A&M University at Galveston catalog at [http://www.tamug.edu/catalog](http://www.tamug.edu/catalog).

**Curriculum in Master of Marine Resources Management**

The 36-hour non-thesis option curriculum is structured with 12 hours of optional elective courses (3 hours of science, 3 hours of law and policy, and 6 hours of courses of the student's choice) and the following 24 required hours:

- MARS 625 GIS Based Modeling for Coastal Resources
- MARS 615 Physical and Geochemical Marine Resources
- MARS 635 Environmental Impact Statements and NRDA
MARS 676 Environmental Policy
MARA 604 Marine Natural Resource Economics
MARB 620 Marine Biological Resources
MARS 675 Environmental Management Strategies for Scientists
MARS 680 Integrative Analyses in Marine Resources
MARS 652 Sustainable Management of Coastal Margins

The MARM program has a required capstone course, MARS 680 (noted above). It is offered each fall and spring. The other required courses are offered yearly, either in the fall or spring. A copy of recent syllabi for these required courses appear in Appendix D.

The thesis-option allows the student to conduct independent, investigative research. Guidelines for the thesis preparation are available online at http://thesis.tamu.edu/thesis-manual. The thesis option curriculum consists of 22 hours of required courses and 14 hours of elective courses (3 hours of law and policy, 3 hours of science, and up to 6 hours of research coursework). (See TAMUG catalog online, section 4 for more details.)

Examples of commonly-taken electives include the following:

<table>
<thead>
<tr>
<th>Table 1: Examples of elective courses taken</th>
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</thead>
<tbody>
<tr>
<td><strong>Prefix and Number</strong></td>
</tr>
<tr>
<td>MARS 610</td>
</tr>
<tr>
<td>MARS 620</td>
</tr>
<tr>
<td>MARS 638</td>
</tr>
<tr>
<td>MARS 640</td>
</tr>
<tr>
<td>MARS 645</td>
</tr>
<tr>
<td>MARS 648</td>
</tr>
<tr>
<td>MARS 650</td>
</tr>
<tr>
<td>MARS 655</td>
</tr>
<tr>
<td>MARS 660</td>
</tr>
<tr>
<td>MARS 670</td>
</tr>
<tr>
<td>MARS 689</td>
</tr>
<tr>
<td>PLAN 641</td>
</tr>
<tr>
<td>PLAN 642</td>
</tr>
</tbody>
</table>

(See http://www.tamug.edu/catalog/Catalog136stuff/Catalog%20136%20Courses.pdf for a complete listing of available courses.)

Copies of recent syllabi for these elective courses can be found in Appendix E. The frequency with which the elective courses are offered is typically once a year but student demand may also play a role. Depending on the student’s interests and coals, they may also choose from courses offered through College Station. There have been issues with registering students in some of these courses, a problem that the Program Committee is attempting to address. Another shortcoming that is being addressed is that of offering a required statistics course. Texas A&M at Corpus Christi offers a distance learning graduate course in statistics but it is difficult for the students to register. Another department on our campus, Maritime Administration, recently hired a faculty member who is developing a graduate-level statistics course for their graduate program and it will be appropriate for the MARM students as well.
The MARM curriculum is distinctive particularly regarding its strong marine resources management emphasis with a balance of science, law, and policy. The MARM Program Committee is currently discussing the requirement that non-thesis students produce a final professional paper during their last semester of the program to be approved by the student’s committee and defended. A statistics course may also become a requirement in the program. Since 2007, the MARM program has graduated 66 students, which is the equivalent to approximately 10 students per year. The average time to graduation is 2.5 years.

Assessment of Student Learning Outcomes

The university’s master plan identified seven “Recommended University Student Learning Outcomes for a Master’s Degree. Each of these is listed below; for each, a comment on its achievement in the MARM program is provided.

1. Master the degree program requirements, including theories, concepts, principles, and practices, and develop a coherent understanding of the subject matter through synthesis across courses and experiences. We believe that each of our graduates have achieved this outcome. Each non-thesis master’s student must demonstrate their mastery of the program’s content by completing a cap-stone course. Students in the thesis track must demonstrate their mastery by successfully researching, writing, and defending a thesis. Both tracks have met these criteria and completed successfully the required coursework.

2. Master the degree program requirements, including theories, concepts, principles, and practices, and develop a coherent understanding of the subject matter through synthesis across courses and experiences. We believe each of our graduates has achieved this outcome. Each of the non-thesis track students are required to become involved in a real problem of interest to the community in Galveston including agreeing on a plan of analysis. Their choices must be justified in a written report as well as a presentation of findings. Thesis track students must demonstrate their mastery and integration by successfully preparing and defending a thesis. Further, all students must successfully complete all required courses.

3. Apply subject matter knowledge in a range of contexts to solve problems and make decisions. We believe our graduates have developed this capacity. Many of the required courses are writing intensive with a focus on critical thinking that involved solving problems and making decisions. Non-thesis track students are required to complete the capstone course which focuses on problem-solving as well.

4. Use a variety of courses and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments. The program course requirements are varied, covering areas such as management, law, policy, planning, and science. Thus, the program is particularly compatible with this learning outcome. Further, non-thesis track students in the capstone course are required to analyze and integrate information and present reasoned arguments to such stakeholders as the Mayor of Galveston and the Port of Houston Authorities. The results of students’ findings are frequently featured in the local newspaper. Thesis track students must present in their thesis an analysis of information and present reasoned arguments in their thesis and its defense.

5. Communicate effectively. Effective communication is a requirement for effective management of marine natural resources. As such, many of the required and elective
courses focus on development of effective communication skills. Critically evaluating and integrating information are emphasized throughout the program. Non-thesis track students in the capstone course must communicate effectively, both orally and written. Thesis track students must also communicate effectively in their thesis and in their oral defense.

6. *Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.* Students in both tracks in the program apply technologies in their assignments. Non-thesis students are required to collaborate in teams and use technology effectively in presenting the results of their research/problem-solving analysis; as well, many of the required courses require this collaboration to solve problems and use various technologies to communicate the results of this problem-solving effort.

7. *Develop clear research plans and conduct valid, data-supported, theoretically consistent, and institutionally appropriate research.* Thesis-track students achieve this objective through the successful completion and defense of their thesis and subsequent publishable material. Although this applies more specifically to those students in the thesis track option, non-thesis track students in the capstone course are required to develop and present clear research plans on how they will solve a problem.

8. *Choose ethical courses of action in research.* The program has at least two courses that deal specifically with ethics and a third one in which ethics is an important component. In each syllabus, students are reminded of the Aggie axiom that emphasizes integrity.

Additionally, the MARM program has provided learning outcome information particularly for its capstone course for entry into the WEAVEonline assessment tracking system of the University. The achievement targets that have been established (and met) for the program in 2010 – 2012 are as follows:

1. The goal of 90 percent of the students being effective in planning community project including project presentations made to outside agencies and submitted to local newspapers was met.

2. The goal of 90 percent of the students being effective in presenting the problem and possible solutions for community projects was met: this included project presentations made to the Mayor of Galveston and the Port of Houston Authorities as well as local newspapers.

3. The goal of 90 percent of the students being able to effectively write and orally present a thesis for a community project; this included project presentations made to both the Mayor of Galveston and the Port of Houston Authorities as well as local newspapers.

4. The goal of 90 percent of the students being able to develop a plan for analyzing a problem for the community was met: this included project presentations made to the Mayor of Galveston and the Port of Houston Authorities as well as local newspapers.

5. The goal of 90 percent of the student being able to collect and present relevant data and propose a solution to a problem was met.

6. The goal of 90 percent of the students being effective in contextualizing the problems in planning community projects was met.
Faculty Profile

There are 27 core faculty (Table 2) associated with the MARM program, primarily based in the Marine Sciences Department. Since 2007, 9 to 13 of the faculty have taught MARM-specific courses during the academic year at any given time. Other departments represented in the core faculty include the Department of Maritime Administration and the Department of Marine Biology. Other faculty members within the MARS department and outside the department help educate MARM students by teaching electives and serving on graduate committees.

The program does not have a staff of its own. However, the Assistant Department Head of MARS serves on the MARM Program Committee and the MARS Administrative Assistant has played a critical role in supporting the MARM graduate students. The campus also has an Office of Graduate Studies and their staff assists our students with degree plans, scheduling defenses, and other requirements.

<table>
<thead>
<tr>
<th>Name and Rank of Core Faculty</th>
<th>Highest Degree and Awarding Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amon, Rainer</strong> Associate Professor</td>
<td>Ph.D., University of Texas, Austin, 1995</td>
</tr>
<tr>
<td><strong>Anis, Ayal</strong> Associate Professor</td>
<td>Ph.D., Oregon State University, 1993</td>
</tr>
<tr>
<td><strong>Armitage, Anna</strong> Associate Professor</td>
<td>Ph.D., University of California, Los Angeles, 2003</td>
</tr>
<tr>
<td><strong>Bodson, Bruce</strong> Lecturer</td>
<td>J.D., South Texas College of Law, 1993</td>
</tr>
<tr>
<td><strong>Brinkmeyer, Robin</strong> Assistant Professor</td>
<td>Ph.D., University of Bremen, Germany, 2003</td>
</tr>
<tr>
<td><strong>Brody, Samuel</strong> Professor</td>
<td>Ph.D., University of North Carolina, 2002</td>
</tr>
<tr>
<td><strong>Davlasheridze, Meri</strong> Assistant Professor</td>
<td>Ph.D., Penn State University, 2013</td>
</tr>
<tr>
<td><strong>Dellapenna, Timothy</strong> Associate Professor</td>
<td>Ph.D., College of William and Mary, 1999</td>
</tr>
<tr>
<td><strong>Galan, Jhenny</strong> Assistant Professor</td>
<td>Ph.D., University of Connecticut, 2006</td>
</tr>
<tr>
<td><strong>Highfield, Wesley</strong> Assistant Professor</td>
<td>Ph.D., Texas A&amp;M University, 2008</td>
</tr>
<tr>
<td><strong>Iliffe, Thomas</strong> Professor</td>
<td>Ph.D., University of Texas Medical Branch, 1977</td>
</tr>
<tr>
<td><strong>Jones, Glen</strong> Professor</td>
<td>Ph.D., Columbia University, 1983</td>
</tr>
<tr>
<td><strong>Kaiser, Karl</strong> Assistant Professor</td>
<td>Ph.D., Marine Sciences, University of South Carolina, 2009</td>
</tr>
<tr>
<td><strong>Knock, Susan</strong> Instructional Associate Professor</td>
<td>Ph.D., University of Texas Medical Branch, 1988</td>
</tr>
<tr>
<td><strong>Linton, Thomas</strong></td>
<td>Ph.D., University of Michigan,</td>
</tr>
</tbody>
</table>
As shown in Table 3, the faculty-student ratios have remained relatively stable between 2007 and 2013. Unduplicated ratios range from 1:2 to 1:3 during the academic year, while headcount ratios average approximately 1:7. In both instances, the faculty-student ratio is low compared to peer programs across the country.

### Table 3: Faculty-Student Ratios

<table>
<thead>
<tr>
<th>Semester</th>
<th>Faculty^</th>
<th>Unduplicated Ratio</th>
<th>Student Headcount</th>
<th>Headcount Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2007</td>
<td>9</td>
<td>1:4</td>
<td>80</td>
<td>1:9</td>
</tr>
<tr>
<td>Spr 2008</td>
<td>9</td>
<td>1:3</td>
<td>80</td>
<td>1:9</td>
</tr>
<tr>
<td>Sum 2008</td>
<td>3</td>
<td>1:7</td>
<td>24</td>
<td>1:8</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>9</td>
<td>1:3</td>
<td>80</td>
<td>1:9</td>
</tr>
<tr>
<td>Spr 2009</td>
<td>12</td>
<td>1:3</td>
<td>76</td>
<td>1:6</td>
</tr>
<tr>
<td>Sum 2009</td>
<td>5</td>
<td>1:5</td>
<td>32</td>
<td>1:6</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>13</td>
<td>1:2</td>
<td>67</td>
<td>1:5</td>
</tr>
<tr>
<td>Spr 2010</td>
<td>9</td>
<td>1:4</td>
<td>52</td>
<td>1:6</td>
</tr>
<tr>
<td>Sum 2010</td>
<td>5</td>
<td>1:2</td>
<td>9</td>
<td>1:2</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>14</td>
<td>1:2</td>
<td>74</td>
<td>1:5</td>
</tr>
<tr>
<td>Spr 2011</td>
<td>12</td>
<td>1:3</td>
<td>42</td>
<td>1:4</td>
</tr>
<tr>
<td>Sum 2011</td>
<td>5</td>
<td>1:2</td>
<td>10</td>
<td>1:2</td>
</tr>
</tbody>
</table>
Over the last three years, MARM faculty members have collectively published 206 peer-reviewed publication (76, 55, and 75 respectively) generating over 8,800 scientific citations. Examples of publications are listed in Appendix B. Publication productivity is fueled by active research programs conducted by multiple faculty. Over the last three years, MARM faculty members have submitted 128 proposals generating $3,281,338, or $1,093,779 per year. These funds support graduate students’ participation in these research activities. In conjunction with research, MARM faculty members regularly teach within and outside of the program. The average teaching load is approximately two courses each semester during the academic year. In terms of diversity, 10 of the 27 core faculty are women, 12.5% are other than white, and 37.5% are non-U.S. born. Required qualifications for faculty hiring by the MARS department to participate in the MARM program are compliant with university policy as detailed in Appendix C of this document. Generally, members must qualify as graduate faculty based on university standards.

Student Profile

Enrollment

The MARM program has experienced a stable enrollment of 31 to 32 students per year over the last five years (Figure 3) and is a major contributor of graduate students and student credit hours (SCHs) for the campus. The Program Committee have discussed increasing enrollment in the future to 50 students.
Since the fall semester of 2007, graduation rates for the MARM program have averaged approximately 66%. The average time to degree during this period was 2.5 years.

The MARM program supports students financially primarily through teaching and research assistantships. Currently, 10 MARM students have graduate teaching assistantships which provide a stipend and in-state tuition. Several other students have graduate research assistantships funded through external grants or contracts. The assistantships typically provide a stipend as well as cover tuition costs. There are also several scholarships and awards for which MARM students can apply. In general, the rate of institutional support for MARM students is significantly higher than comparable professional degree program across the U.S.

Table 3 provides data on student diversity beginning with the 2007 fall semester. Students participating in the MARM program over the last seven years have been predominantly white and female. While this trend mimics the composition of peer programs we hope to increase student diversity in the future.
Table 3: Student Diversity and Demographics

<table>
<thead>
<tr>
<th>Year</th>
<th>White</th>
<th>Black</th>
<th>Hisp</th>
<th>Asian</th>
<th>Int’l</th>
<th>Unknown</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male %</th>
<th>Female %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2007</td>
<td>25</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>27</td>
<td>5</td>
<td>32</td>
<td>78.13%</td>
<td>15.63%</td>
<td>84.38%</td>
</tr>
<tr>
<td>S2008</td>
<td>20</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>24</td>
<td>7</td>
<td>31</td>
<td>74.07%</td>
<td>23.81%</td>
<td>90.91%</td>
</tr>
<tr>
<td>SU2008</td>
<td>13</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>20</td>
<td>65.00%</td>
<td>27.86%</td>
<td>92.86%</td>
</tr>
<tr>
<td>F2008</td>
<td>23</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>26</td>
<td>10</td>
<td>36</td>
<td>79.31%</td>
<td>14.81%</td>
<td>94.11%</td>
</tr>
<tr>
<td>S2009</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td>24</td>
<td>33</td>
<td>57</td>
<td>75.76%</td>
<td>24.24%</td>
<td>90.00%</td>
</tr>
<tr>
<td>SU2009</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>20</td>
<td>25</td>
<td>84.00%</td>
<td>16.00%</td>
<td>91.20%</td>
</tr>
<tr>
<td>F2009</td>
<td>23</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>23</td>
<td>31</td>
<td>54</td>
<td>88.46%</td>
<td>11.54%</td>
<td>90.00%</td>
</tr>
<tr>
<td>S2010</td>
<td>29</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>22</td>
<td>33</td>
<td>55</td>
<td>87.88%</td>
<td>12.12%</td>
<td>90.00%</td>
</tr>
<tr>
<td>SU2010</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>15</td>
<td>88.89%</td>
<td>11.11%</td>
<td>90.00%</td>
</tr>
<tr>
<td>F2010</td>
<td>26</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>19</td>
<td>31</td>
<td>89.66%</td>
<td>6.34%</td>
<td>96.00%</td>
</tr>
<tr>
<td>S2011</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>20</td>
<td>31</td>
<td>51</td>
<td>86.21%</td>
<td>13.79%</td>
<td>90.00%</td>
</tr>
<tr>
<td>SU2011</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>90.91%</td>
<td>9.09%</td>
<td>90.00%</td>
</tr>
<tr>
<td>F2011</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>18</td>
<td>32</td>
<td>46</td>
<td>86.21%</td>
<td>3.79%</td>
<td>90.00%</td>
</tr>
<tr>
<td>S2012</td>
<td>27</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>17</td>
<td>32</td>
<td>42</td>
<td>90.00%</td>
<td>10.00%</td>
<td>90.00%</td>
</tr>
<tr>
<td>SU2012</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>85.71%</td>
<td>14.29%</td>
<td>90.00%</td>
</tr>
<tr>
<td>F2012</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>16</td>
<td>32</td>
<td>43</td>
<td>86.21%</td>
<td>3.79%</td>
<td>90.00%</td>
</tr>
<tr>
<td>S2013</td>
<td>28</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>15</td>
<td>31</td>
<td>41</td>
<td>90.32%</td>
<td>9.68%</td>
<td>90.00%</td>
</tr>
<tr>
<td>SU2013</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>87.50%</td>
<td>12.50%</td>
<td>90.00%</td>
</tr>
<tr>
<td>F2013</td>
<td>31</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>17</td>
<td>30</td>
<td>49</td>
<td>91.18%</td>
<td>8.82%</td>
<td>90.00%</td>
</tr>
</tbody>
</table>

F= Fall
S= Spring
SU= Summer
Table 4 provides information on enrollment and retention for the MARM program. As mentioned above, there are approximately 31-32 students enrolled per semester during the academic year. Since 2007, 66 students have graduated with a Master’s degree. The number of full-time students has ranged from 51-74 percent, depending on the semester. Retention rates have increased steadily and reached 94 percent during the 2012 fall semester (the most recent semester for which we have data).

<table>
<thead>
<tr>
<th>MARM Graduates</th>
<th>Semester</th>
<th>Retention</th>
<th>Enrollment</th>
<th>% Fulltime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td># of Grads</td>
<td>Fall 2007</td>
<td>59.37% (Total)</td>
<td>32</td>
</tr>
<tr>
<td>2007</td>
<td>8</td>
<td>Spr 2008</td>
<td>75% (FTM)</td>
<td>27</td>
</tr>
<tr>
<td>2008</td>
<td>5</td>
<td>Sum 2008</td>
<td>74.19%</td>
<td>20</td>
</tr>
<tr>
<td>2009</td>
<td>11</td>
<td>Fall 2009</td>
<td>75% (FTM)</td>
<td>31</td>
</tr>
<tr>
<td>2010</td>
<td>12</td>
<td>Spr 2009</td>
<td>63.63%</td>
<td>33</td>
</tr>
<tr>
<td>2011</td>
<td>7</td>
<td>Sum 2009</td>
<td>54.54%</td>
<td>25</td>
</tr>
<tr>
<td>2012</td>
<td>11</td>
<td>Fall 2009</td>
<td>54.83%</td>
<td>31</td>
</tr>
<tr>
<td>2013</td>
<td>12</td>
<td>Spr 2010</td>
<td>45.16%</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sum 2010</td>
<td>64.51%</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 2010</td>
<td>53.12%</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spr 2011</td>
<td>71.87%</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sum 2011</td>
<td>54.54%</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 2011</td>
<td>66.66%</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spr 2012</td>
<td>70.96%</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sum 2012</td>
<td>60.00%</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 2012</td>
<td>71.87%</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spr 2013</td>
<td>54.54%</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sum 2013</td>
<td>66.66%</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 2013</td>
<td>70.96%</td>
<td>31</td>
</tr>
</tbody>
</table>

Texas A&M University at Galveston tracks the average GRE scores of students graduating each year. The average GRE scores for the last three graduation years ranged from 1050 to 1116, with a median of 1087. Thus, the GRE scores seem to be improving, as increases were seen in both verbal and analytical components of the GRE. Additionally, consideration of a student’s GPA and the letters of recommendation for the applicant are weighed equally along with the GRE score.

The Texas Higher Education Coordinating Board requires a minimum of 15 degrees completed over a five year period in order for a master’s program to be offered. The retention and graduate rates have been high. For those students who have graduated from the program, the final grade point averages (GPA) have been as follows:
### GPA

<table>
<thead>
<tr>
<th>GPA</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td>15</td>
</tr>
<tr>
<td>3.50-3.99</td>
<td>49</td>
</tr>
<tr>
<td>3.25-3.49</td>
<td>6</td>
</tr>
<tr>
<td>3.00-3.24</td>
<td>0</td>
</tr>
</tbody>
</table>

The above, however, was not broken down to reflect thesis versus a non-thesis option students. The Program Committee is reviewing this information. In general, however, the students have done well academically.

As noted previously, MARM graduates have been very successful at obtaining employment after graduation and hold a wide range of positions. Although more needs to be done to remain in touch with all of the MARM graduates, and the Program Committee is reviewing options, a recent survey of 57 MARM graduates since 2008 found that respondents reported employment positions in a diversity of sectors including oil and gas companies, environmental consulting firms, U.S.A.C.E., New England Aquarium, Texas Parks and Wildlife, Ohio Sea Grant, and Michigan Sea Grant, among others. Several graduates, about 5%, have also entered PhD programs or would like to.

### Resources

In general, given its nature, this program in marine resources management does not require extensive equipment and facilities. For those working in labs, the labs were created outside the MARM program. We attempt to give graduate students work space if it is needed although we have begun to feel the constraints of inadequate space. As well, if the program expands, desk space may become an even greater issue. Many of the students have assistantships in the form of teaching or research assistantships. There are also several opportunities for competing for travel and incidental expenses funds such as the Moody Travel Award which requires a descriptive letter from the graduate student and a letter of support from the student’s advisor.

### Concluding Observations

The first decade of the MARM program has been a great success. Enrollment is stable, students are receiving employment upon graduation, and research productivity among core faculty remains at a high level. Over the past five years, the MARM program has transitioned from a primarily evening professional program for working students to a full-time degree with multiple research opportunities. Recent hiring of key faculty in economics and spatial analysis has further enhanced the strength and capacity of the program and we are committed to continually improving our academic performance. This self-assessment offers a valuable opportunity to strategically plan for the next decade of the program as well as guide the external review committee in its assessment.
Appendix A: TAMUG Strategic Plan

Texas A&M University at Galveston
2011 – 2015 Strategic Plan

http://www.tamug.edu/administration/Strategic%20Plan.html

TAMUG Mission Statement
Texas A&M University at Galveston is a special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering and business and for research and public service related to the general field of marine resources. The institution is under the management and control of the Board of Regents of The Texas A&M University System, with degrees offered under the name and authority of Texas A&M University at College Station.

Philosophy and Core Values
Texas A&M University at Galveston (TAMUG) is committed to being the premier university for ocean and coastal studies on the Gulf Coast by providing enriching educational, research and service programs. TAMUG is a branch campus of Texas A&M University (TAMU), a tier one research institution. With an enrollment less than 2,000 students, the TAMUG campus culture is strongly influenced by both research as well as a small college atmosphere. The special purpose designation of the Galveston campus supports the Sea Grant mission of Texas A&M University (designated September 17, 1971). TAMUG is further committed to maintaining a high quality and dynamic learning community, enhancing the campus infrastructure, and fostering a diversity of student experiences. In addition, TAMUG is committed to ensuring that the Texas Maritime Academy is the premier Merchant Marine Academy in the United States. These commitments are driven and focused through the dedication TAMUG has to the six core values of Texas A&M University:

- Excellence
- Integrity
- Leadership
- Loyalty
- Respect
- Selfless Service

TAMUG strives for excellence in all endeavors. TAMU’s Vision 2020 and the Academic Master Plan guide campus operations, research and academics. TAMUG offers many opportunities to excel in programs such as the Center for Beaches and Shores, Texas Institute of Oceanography, Coastal Zone Laboratory, Texas Maritime Academy and many other. TAMUG strictly adheres to the Aggie Code of Honor. It embodies the core value of Integrity. “Aggies do not lie, cheat or steal; or tolerate those who do.”

The core value of leadership is integral to the campus cultures and can be evidenced in the classrooms, residence halls, organizations, research laboratories and external community organizations. This Aggie Spirit creates leadership opportunities on campus through numerous student led programs including the SALT (Sea Aggies Learning Traditions) Camp, Big Event, Honors program, Undergraduate Research Scholars and a host of student organizations. The
small campus is an optimal environment for every student to find a means to participate and gain leadership experience.

TAMUG maintains a deep respect for the traditions and values of Texas A&M University. Aggie traditions are remembered, encouraged and practiced in Galveston with Muster, Big Event, yell practice, Silver Taps, Elephant Walk, as examples. It is with great pride that TAMUG students proudly wear the Aggie Ring and upon graduation join the ranks of those who went before them and are inducted into the TAMU Association of Former Students. Loyalty and respect for our traditions and each other are the corner stones of the campus community. From the diversity of people drawn to TAMUG and the interdisciplinary nature of the marine and maritime disciplines studied, Sea Aggies deeply respect and appreciate what makes each person unique and what ties us together.

TAMUG and TAMU are predicated on the idea of serving the people of Texas, the country and even the world. At TAMUG our students, faculty and staff are encouraged to be involved in campus, community and professional service organizations. Due to the small campus size, there is a strong personal connection among the students, faculty and staff. These relationships foster informal communication and allow for individual strengths and interests to be fit to needs and opportunities in learning, research, service and leadership.

The proximity to the Gulf of Mexico as a window to the sea has enabled TAMUG to focus the academic, research and student opportunities into a unique marine and maritime experience that TAMUG alone can offer. This advantage is enhanced by the island atmosphere of the campus, enabling each student, staff and faculty member to enjoy the academic and recreational aspects of coastal life. The resounding love and respect for the ocean, its inhabitants, and the global markets created by marine and maritime trade coupled with the traditions of Texas A&M bind and define the community of Galveston Aggies.

As part of TAMU, TAMUG engages in the University’s overall planning process and fully supports the strategic goals set forth in Vision 2020 and the Academic Master Plan.

**TAMUG Strategic Goals and Strategies**

TAMUG will strive to be a **preeminent academic community**, emphasizing marine related studies, while enhancing uniquely competitive programs to support the external stakeholders.

- Recruit preeminent faculty to foster faculty development and increase diversity.
- Become the premier institution on the Gulf Coast for marine research and graduate programs.

*Supports TAMU Vision 2020 Imperatives I, II, III, VI, X, XI, and XII.*

TAMUG will maintain a **high quality & dynamic student learning community**.

- Develop a student learning environment consistent with the Academic Master Plan and University Quality Enhancement Plan.
• Expand enrichment experiences for students including advising, mentoring, hybrid courses, honors, and programs to facilitate transition from high school to college and success to graduation.

• Improve the academic, research and outreach visibility of TAMUG locally, as well as through the state and nation.

Supports TAMU Vision 2020 Imperatives II, III, V, VII, XI, and XII.

TAMUG will foster diverse student experiences, global citizenship and enhance student engagement in community outreach and development.

• Improve overall campus communications and involvement.

• Recruit and retain professional staff to meet the increasing needs of the student population.

• Utilize waterfront facilities, undergraduate employment and internships, leadership opportunities, wellness programs, development, weekend programs, athletics and Former Student networks to build resources and capacity for increased engagement resulting in student persistence.

Supports TAMU Vision 2020 Imperatives III, VI, VIII, IX, and XII.

TAMUG will enhance the campus infrastructure, consistent with the Campus Master Plan, to accommodate the residential, recreational, academic and research development; including facility needs, campus safety and beautification while maintaining energy conservation in an eco-sensitive manner.

• Upgrade, enhance, and expand the residential and recreational facilities on campus, including the training ship, library and physical education facilities and the infrastructures to support the expansion.

• Stabilize and strengthen campus infrastructure especially related to energy conservation.

Supports TAMU Vision 2020 Imperatives VIII, XI, and XII.

The Texas Maritime Academy will be the premier Merchant Marine Academy in the United States of America.

• Convert and make ready for sail the U.S.T.S. Texas Clipper.

• Reestablish the identity of the Texas Maritime Academy on campus and grow enrollment as facilities permit.

Supports TAMU Vision 2020 Imperatives III, V, VI, VII, VIII, IX, and XII.

TAMUG will be the premier ocean and coastal studies research organization on the Gulf coast.

• Encourage programs that fully utilize the capabilities of the new Ocean and Coastal Studies Building, the Powell Marine Engineering Complex and waterfront facilities.

• Improve the research visibility of TAMUG in the local community, state and nation.

Supports TAMU Vision 2020 Imperatives I, II, VI, VII, XI, and XII.
DRAFT Metrics

- Continued growth toward 3,000 students.
- Expansion of graduate student population to approx 10% of total population.
- Expansion of ethnically diverse student population to approx 25% of total population.
- Expansion of Texas Maritime Academy population to approx 400.
- Increased population of top ten percent admission to 5% of incoming freshman admission.
- Increased population of honors eligible freshman.
- Increase one year persistence rate (TAMUG only) to 65%.
- Increased 6 year graduation rate (TAMUG only) to 45%.
- Complete conversion of UTS Texas Clipper to resume operations by 2012.
- Create uncommitted reserve balances approx 50% of one year operating budget.
- Expand campus area residential facilities to 68 % of total undergraduate population.
- Ensure 100% of academic programs sustain assessment programs.
- Increase faculty membership in national academies to 3.
- Increase number of endowed chairs to 8.
- Increase financial endowment to $25 million.
- Increase research expenditures to ______.
- Decrease undeclared undergraduate population to less than 10%.
- Decrease freshman academic deficiency rate to less than 25% (while maintaining quality).
- Increase courses with some framework using instructional technology to 80%
- Increase graduates involved in undergraduate research to 90%.
- Increase graduates (undergraduate programs) with an international experience to 70%.
- Increase to at least 50% of all students have an on the water experience every semester.
- Maintain administrative cost ratio below 12%.
Appendix B: Faculty Publications, 2011-2013

2013 Publications


Li, M., Y. Wang, WM Ju, Effects of a remotely sensed land cover dataset with higher spatial resolution on secondary air pollutants simulation over China using the nested-grid GEOS-Chem chemical transport model, Advances Atmos. Sci., 2013, in press.


Merrell, W. Protecting the Urbanized Areas of the Upper Texas Coast from Hurricane Storm Surge: The Ike Dike, Proceedings of the SPEED Center Conference, Rice University.


2012 Publications


2011 Publications


APPENDIX C: QUALIFICATION FOR GRADUATE FACULTY APPOINTMENTS
Faculty Qualifications

Graduate Faculty Membership

This document presents University policies and practices which Department Heads should use in nominating members to the Graduate Faculty of Texas A&M University. Departments and colleges may have additional requirements that must be satisfied by individuals wishing to be recommended for appointment to the Graduate Faculty. Additional requirements are subject to the review and approval of the Associate Provost for Graduate Studies. The following sections discuss the various categories of Graduate Faculty. The final section discusses current policy for assigning titles to members of the Graduate Faculty in the Graduate Catalog.

General Description of Graduate Faculty

The Graduate Faculty at Texas A&M University consists of the President, the Vice President for Academic Affairs, the Associate Provosts, the Deans of all subject-matter colleges, selected Directors, and properly qualified academic groups appointed by the Associate Provost for Graduate Studies. Appointees to the Graduate Faculty participate in the graduate degree programs of the University by serving on student advisory committees and teaching graduate courses. Individuals who have not been appointed to the Graduate Faculty may not teach graduate courses or serve on student advisory committees unless special approval is granted by the Associate Provost for Graduate Studies.

The Graduate Faculty is composed of Members, Associate Members, Adjunct Members, and Special Appointments. Members and Associate Members are selected from qualified individuals of the academic staff of Texas A&M University, from the staff of other parts of the University, from The Texas A&M University System, and from affiliated research organizations (such as USDA) located in College Station, Texas.

Nomination for membership on the Graduate Faculty is always initiated by the head of the appropriate academic department of Texas A&M University in College Station and is processed as discussed in the following sections.

Appointment to membership on the Graduate Faculty, although considered an honor, serves functional purposes and must be earned. Appointment to membership is not for the purpose of conferring recognition upon an individual, but is designed to assure competence in the directing and counseling of graduate students and in the teaching of graduate courses. Such competence is, in part, a function of experience and knowledge of operational procedure; it is also characterized by ability and motivation.

Membership on the Graduate Faculty is maintained only by participating in the graduate program by teaching, by directing or administering graduate work, by doing research and publication, or by other direct and substantial contributions to the graduate programs of the University, such as by service on a Graduate Instruction Committee or by administrative assignments in graduate education. The Graduate Council expects that all Deans and Department Heads will regularly review the Graduate Faculty under their direction and will recommend withdrawal of the appointments of any members who no longer merit membership on the Graduate Faculty on the basis of their lack of contribution to graduate education. The Department Head shall notify any faculty member who is non-voluntarily removed from the roles of the Graduate Faculty, and the faculty member has the right to appeal his/her removal through the PPM 2.3.2.6 (Faculty Grievance Procedures).
A graduate student at Texas A&M University may not be a member of the Graduate Faculty. Membership on the Graduate Faculty of any faculty or staff member of Texas A&M University or The Texas A&M University System and affiliated research organizations is forfeited upon a faculty or staff member’s admission to a graduate program at Texas A&M University. The four categories of membership are: 1) Member, 2) Associate Member, 3) Adjunct Member, and 4) Special Appointment.

Members

Eligibility

Tenure track and tenured faculty members of Texas A&M University are eligible to participate as Members of the Graduate Faculty under criteria and guidelines as established by each college or department on the College Station campus. Appointment of an individual as a Member is accomplished by a letter of nomination from the head of a department on the College Station campus to the Associate Provost for Graduate Studies. In some cases, additional approval is required by the Dean or the Graduate Instruction Committee of the individual’s college.

A non-tenure-track individual employed by Texas A&M University, TAES, TAEX, TEES, TEEX, or TTI with professorial rank is eligible to participate as a Member of the Graduate Faculty. A person holding the title of Lecturer or Senior Lecturer may not normally be considered for Member status on the Graduate Faculty. Exceptions to this will be acceptable only if the person concerned has an unusual or unique contribution to make to the graduate program of Texas A&M University and approval is granted by the department, college, and Office of Graduate Studies. A non-tenure-track individual is nominated by the head of the appropriate academic department in College Station who must present evidence that (a) the nominee (1) has taught a graduate class, or (2) has actively served on a graduate student’s advisory committee, or (3) has held a definite administrative assignment in the graduate program of a university; and that (b) the nominee has published a scholarly work as primary author (or, in the case of a professional discipline, has exhibited appropriate evidence of professional accomplishment). Recognized scholars and authorities whose merits are clearly established need not be measured by standard criteria. Appointment of these individuals is accomplished by use of the Personal Record Form, initiated by the head of the academic department in College Station, through the College Graduate Instruction Committee and the College Dean to the Associate Provost for Graduate Studies.

A non-tenure-track individual employed by Texas A&M University at Qatar (TAMUQ) with professorial rank in engineering is eligible to participate as a Member of the Graduate Faculty of Texas A&M University (TAMU) following a letter of nomination from the TAMUQ Graduate Instruction Committee (the members of which shall be Members of the Graduate Faculty at TAMU) through the Dean/CEO of the TAMUQ campus and the appropriate administrative chain at TAMU to the Associate Provost for Graduate Studies.
Privileges

A Member of the Graduate Faculty, located at College Station, may teach graduate courses and serve as member, co-chair or chair of a graduate student's Advisory Committee. Members located at the Texas A&M University Galveston Campus, Texas A&M University Qatar Campus, the TAMU Temple Campus, or TAMU's Institute of Biosciences and Technology-Houston may teach graduate courses and serve as a member, co-chair or chair of a graduate student's Advisory Committee. Other Members of the Graduate Faculty located off-campus may teach graduate courses and serve as a member or co-chair (but not chair), with a Member as the other co-chair, of a graduate student's Advisory Committee.

Associate Members

Eligibility

Any faculty member (including Instructors and Lecturers, if permitted by the department or college's policy) or professional staff employed by Texas A&M University, TAES, TAEX, TEES, TEEX, or TTI who holds the highest earned degree common to that person's discipline may be granted Associate Member status on the Graduate Faculty of Texas A&M University provided that the individual's appointment as an Associate Member of the Graduate Faculty will be beneficial to the department's graduate program. In addition, employees of federal and state agencies located in the College Station area are eligible for Associate Member status. It is expected that a nominee for Associate Member status has published a scholarly work as primary author (or, in the case of a professional discipline, has exhibited appropriate evidence of professional accomplishment). Recognized scholars and authorities whose merits are clearly established need not be measured by standard criteria.

Appointment to Associate Member status is accomplished by use of the Personal Record Form, initiated by the head of the academic department at College Station through the College Graduate Instruction Committee and the College Dean to the Associate Provost for Graduate Studies. A non-tenure-track individual is nominated by the head of the appropriate academic department at College Station who must present evidence that (a) the nominee (1) has taught a graduate class, or (2) has actively served on a graduate student's advisory committee, or (3) has held a definite administrative assignment in the graduate program of a university; and that (b) the nominee has published a scholarly work as primary author (or, in the case of a professional discipline, has exhibited appropriate evidence of professional accomplishment). Recognized scholars and authorities whose merits are clearly established need not be measured by standard criteria. Appointment of these individuals is accomplished by use of the Personal Record Form, initiated by the head of the academic department at College Station through the College Graduate Instruction Committee and the College Dean to the Associate Provost for Graduate Studies.

Privileges

An Associate Member of the Graduate Faculty of Texas A&M University may teach graduate courses and serve as member or co-chair (but not as chair) with a Member as the other co-chair of a graduate student's Advisory Committee.
Adjunct Members

Eligibility

Recognized scholars who do not hold a permanent appointment to the faculty (including visiting and adjunct academic appointments) of this University, but who otherwise meet the basic requirements for the status of Member of the Graduate Faculty, as described previously, may be eligible for appointment to Adjunct Member status. In addition, individuals not located in College Station and not employed by Texas A&M University may be considered for Adjunct Member status on the Graduate Faculty provided they are employed by another agency of the Texas A&M University System or are qualified staff of federal or state agencies. Such nominations should be made in those cases in which there is an apparent need, and justification can be presented by the head of an academic department in College Station.

Appointment of an Adjunct Member is accomplished by use of the Personal Record Form, initiated by the head of the academic department at College Station through the College Graduate Instruction Committee and the College Dean to the Associate Provost for Graduate Studies. A non-tenure-track individual is nominated by the head of the appropriate academic department in College Station who must present evidence that (a) the nominee (1) has taught a graduate class, or (2) has actively served on a graduate student’s advisory committee, or (3) has held a definite administrative assignment in the graduate program of a university; and that (b) the nominee has published a scholarly work as primary author (or, in the case of a professional discipline, has exhibited appropriate evidence of professional accomplishment). Recognized scholars and authorities whose merits are clearly established need not be measured by standard criteria. Appointment of these individuals is accomplished by use of the Personal Record Form, initiated by the head of the academic department at College Station through the College Graduate Instruction Committee and the College Dean to the Associate Provost for Graduate Studies.

Privileges

An Adjunct Member of the Graduate Faculty may teach graduate courses and serve as a member or co-chair (but not chair) with a Member as the other co-chair of a graduate student’s Advisory Committee.

Special Appointment

There may be times when the head of an academic department in College Station wishes to have qualified individuals teach a graduate course or serve on a student’s Advisory Committee without being permanently on the Graduate Faculty as either a Member, Associate Member, or Adjunct Member. In addition, qualified individuals from other universities, government or industry may be appointed in special cases to teach a graduate course or to serve on a student’s Advisory Committee.

These appointments are accomplished by use of the Personal Record Form, initiated by the head of an academic department in College Station to the Associate Provost for Graduate Studies with the individual’s resume attached. The department head should indicate if the Special Appointment status is to be limited to the one specified committee, to one specified teaching assignment, or to a fixed length of time (e.g., for one or two years).
A qualified individual from another university, government or industry who holds Special Appointment status to the graduate faculty and who serves on a Graduate Advisory Committee is not counted toward the minimum number of graduate faculty necessary to form the committee.

Procedural Guidelines

1. Research staff who are on the Graduate Faculty of Texas A&M University and who hold payroll titles equivalent to the "Scientist" titles will be assigned by the Associate Provost for Graduate Studies, for the purpose of listing in the Graduate Catalog, the equivalent "Scientist" title. (Example: A person holding the payroll title of "Associate Research Engineer" will be assigned the title of "Associate Research Scientist").

2. Extension Service personnel on the Graduate Faculty of Texas A&M University will be identified in the Graduate Catalog by the title "Extension Specialist".

3. USDA personnel on the Graduate Faculty of Texas A&M University will be identified in the Graduate Catalog by the title "USDA Scientist".

4. Individuals in the Member, Associate Member, and Adjunct Member categories will be listed in the Graduate Faculty section of the Graduate Catalog.

5. Only names of individuals in the Member category of the Graduate Faculty will be listed under the respective departmental headings in the Graduate Catalog.

Effective beginning 1/27/12
APPENDIX D
Core Courses’ Syllabi
MARB 620 - Course Syllabus
“Living Marine Resources”

INSTRUCTOR: Dr. Gilbert T. Rowe II, Regents Professor, MARB and Oceanography
CLASS MEETING: Spring 2014, Wednesdays, 3:30 to 6:00, CLB 210, with TTVN or Camtasia connections to TAMUCC and TAMU (as needed)
TEXTBOOKS: Class References (not required):
Unpublished 'notes' in Biological Oceanography by G. Rowe available on-line for registered students; visit the course website for this book of notes from the class.

I. COURSE DESCRIPTION
Survey of living resources in marine environments, with an emphasis on the interactions between organisms and the processes that regulate life in the ocean.

II. COURSE AUDIENCE
Graduate students in Marine Resource Management and the Marine Biology Interdisciplinary Program.

III. LEARNING OUTCOMES
At the conclusion of this course students should be able to:
1. Identify and categorize a wide variety of organisms in the ocean that are pertinent to resource management.
2. Understand what controls life in the ocean across a wide spectrum of habitats in relevant ecosystems.
3. Gain skills in measuring and evaluating animal and plant populations and food webs in coastal ecosystems.
4. Synthesize the salient biological and chemical properties of coastal ecosystems using statistics and models (supplemented by a habitat’s color, light, smell, taste and feel).
5. Utilize ‘biological’ indicators (biomass, stock size, biodiversity and evenness, size spectra) to assess ecosystem function and health.
6. Work cooperatively in a multidisciplinary group for a common goal (understanding how food webs and ecosystems function).

COURSE TOPICS

IV. INSTRUCTIONAL METHODS AND ACTIVITIES
Traditional lectures via power point presentations, classroom discussions, student homework and reading. A mid-term and final exam will cover classroom material. To the degree possible, lecture material will be available by ‘distance technologies’. When appropriate, hands-on material will be made available in class, or in OCSB in the benthic ecology(deep-sea biology) lab (lab #104), as a learning embellishment. Conceptual models will be utilized to explain ecosystem component interactions; extending these models to quantitative stocks and fluxes will be added when adequate information warrants. Each student will be required to submit a research paper of their own choosing, with approval of the instructor, and then the student will give a 10 minute Power Point presentation of the material at the end of the semester.

V. EVALUATION AND GRADE ASSIGNMENT
Assignment Overall Grade Percentage
Two exams: 60%
Individual term paper
   Paper – 10 pages in format of a research paper 20%
   Final presentation – last two sessions 15%
Classroom and on-line participation 5%
Total: 100%
VI. ATTENDANCE AND OTHER COURSE POLICIES

Students are required to attend all class meetings. Participation is essential to do well in the class. Discussions and student input are considered an important part of the class. Class exams cannot be retaken other than for a university excused absence that are limited to medical emergencies that can be certified in writing by a physician, participation in a TAMUS sanctioned event or other similar circumstances justified in writing and specified in the TAMUS graduate catalog for the ongoing academic year. Exams and literature review are expected on time unless prior arrangements are made. Such prior arrangements will be granted only in exceptional circumstances as well. Submitting an assignment late without prior arrangement may lead to a grade of 0 and at least to a substantial penalty.

Academic honesty: Please review the University policies on academic integrity and honesty listed in the Graduate Catalog under the Academic Honesty section. This instructor will follow these guidelines if such infraction such as plagiarism or other dishonest conduct occurred as part of this class. These guidelines will be followed for both the evaluation of the gravity of the infraction and the determination of an appropriate penalty. Any student who has been penalized for academic dishonesty has the right to appeal the judgment or the penalty assessed. The Appeals Procedure will be the same as that specified for grade appeals. The grade appeals procedure may be found in the University Rules.

VII. SPECIAL NEEDS

The university complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please see the instructor as soon as possible and present the accommodation letter from TAMUS Services for Students with Disabilities Office. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.) please contact the Services for Students with Disabilities Office. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

VIII. TENTATIVE COURSE PROGRESSION

Jan. 15, Session 1: Introductions: who we are and why we are taking this course; where are we from and what background do we have in ecosystem science; phytoplankton species composition, light and nutrients and limits to plant growth; photosynthesis; the spring bloom; Michaelis-Menton and Monod equations; measuring primary production; eutrophication; high nitrate, low pigment areas and iron; general, widely-accepted units of mass, area, volume and time in oceanography and environmental management.

Jan. 22, Session 2: grazers, zooplankton, filter feeders, food webs; NPZ models; biogeographic distributions of primary consumers; secondary production and growth; growth equations; bioenergetic principles and relationships within open ocean and estuarine food webs; microbes and their significance; the microbial loop.

Jan. 29, Session 3: Demonstrate a comprehensive suite of sampling gear, followed by lab analyses of samples collected. Meet at the lab (OCSB 104) and haul gear to the boat basin or the 'T' head.

Feb. 5, Session 4: Benthic organisms and demersal fisheries; taxonomic composition; biomass and size distributions; species diversity principles and applications; methods of study.
Feb. 12, Session 5: Fish and fisheries; decline in mean sizes; maximum global fish yields; models of fish population dynamics; failure of fisheries management; ecosystem based management; models of ocean and estuarine food webs. What is ‘ecosystem based fisheries management’?

Feb. 19, Session 6: Marine mammals; birds and marine ecosystems; predator – prey models in food webs; bottom up vs top down control of biodiversity. Exam #1 (does not include Session 6 material).

Feb. 26, Session 7: Open ocean ecosystems – what controls production, biomass and diversity; estuarine ecosystems – composition and controls on productivity, diversity and food webs; Continental shelf ecosystems; Hypoxia and eutrophication - causes and controls.

Mar 5, Session 8: Coral reef ecosystems – biodiversity, global distributions, threats from civilization and climate change; Estuaries, oyster reefs, marshes and mangrove ecosystems – distributions, species composition and dominant taxa, importance to production and fisheries in estuaries; ecosystem services of coastal systems; can wetlands be created?

Mar 12, Spring Break, no class.


Mar 26, Session 10: Polar regions; community structure; seasonal changes; climate change effects and possible threats; diversity and mean animal size gradients; and upwelling zones and major fisheries.

April 2, Session 11: Mariculture – opportunities and impacts; major challenges to managing ocean and coastal ecosystems in the future (overfishing, loss of diversity, pollution, habitat loss, climate change, eutrophication, …?); sanctuaries as a ‘conservation’ strategy to preserve fisheries and biodiversity; artificial reefs and structures implanted by the oil industry in the Gulf of Mexico – do they increase production or just provide habitat?

April 9, Session 12: Ecosystem services – what are they and how are they estimated? Begin reports.

April 16, Session 13: Begin presentations.

23, Session 14: Continue and finish presentations; Final day to turn in term papers

May 5, 8-10 a.m. Final exam (tentative – see exam schedule
MARS 615 – Physical and Geochemical Marine Resources
Spring 2013

Text: There is no text book for this course. However, we will make use of a wide variety of websites and peer-reviewed journal articles.

Instructor: Dr. Glenn A. Jones (e-mail jonesg@tamug.edu, office phone 741-4360, cell phone 392-1665) Office Hours: My office is in OCSB Rm 356. My formal office hours are Mon, Tues, Wed from 2:00 to 4:00 pm, feel free to stop by during those times. Best bet is to email or phone or see me after class to set an appointment if another time is more convenient. Class: Tuesday 6:00 – 8:50 pm in PMEC 239.

Prerequisite: CHEM 102, GEOL 104, OCNG 251, or equivalent. Graduate status or approval of instructor.

Goals and Objectives: MARS 615 - Physical and Geochemical Marine Resources will examine the location, identification, extraction and exploitation of non-living marine resources, including: water, salt, hydrocarbons, minerals, renewable energy, chemical compounds, and construction materials in estuarine, coastal and open ocean areas. In addition, we will look at these resources from the perspectives of the developed and the least-developed countries. For the first half of the semester the class will be divided into two groups, with each taking the side of the developed or least-developed countries and their approach to utilizing and/or exploiting the discussed resources. The second half of the semester will have the class divided into two groups, with each focusing on either the non-renewable or renewable energy resources.

Assessment (i.e. grades):
Based on a 5 page (double-spaced) “mid-term” paper (individual effort) on non-energy marine resources (30%), a 20 page (double-spaced) “final” paper (group project) on energy-based marine resources (40%), and active class participation throughout the semester which includes being able to conduct informed discussions about each week’s assigned readings, question-answering during lecture and leading one nominal 30 minute class presentation (30%).

Tentative Schedule of Discussion Topics:
Jan 14: General discussion of UNCLOS and ISA.
Jan 21: General discussion of developed vs least-developed countries and their resources.
Jan 28: Desalinization.
Feb 04: Salts.
Feb 11: Gold, diamonds, and tin.
Feb 18: Carbonate and non-carbonate construction materials.
Feb 25: Manganese nodules and polymetallic sulphides.
Mar 04: Nautical archeology and recovery of shipwreck artifacts.
Mar 11: No Class, Spring Break.
Mar 18: Hydrocarbon and natural gas extraction.
Mar 18: Mid-term individual paper due: Five pages on aspects of non-energy resources
Mar 25: Hydrocarbon and natural gas extraction.
Apr 01: Tidal, current and thermal energy.
Apr 08: Offshore wind farms.
Apr 15: Discussion of future energy needs and the role of the oceans.
Apr 22: Semester wrap-up and examination of resource availability through the 21st century in the developed and least-developed countries.
May 02: No comprehensive final exam, but a twenty page paper (group effort) on renewable vs. non-renewable aspects of energy resources in the developed and least developed countries. Due by 6pm.

Final grade assignment:
A = 90+, B = 80 - 89, C = 70 - 79, D = 60 - 69, F = below 60 Misc:

1) Being a graduate course, the majority of time (and largest grade assessment) will be devoted to discussions. In order for this to work and be productive and informative you will have to prepare for each class. My thinking is that the class will be split into 2 groups (for the first half of the semester - developed and least developed countries, and for the second half of the semester – non-renewable vs renewable energy resources within the developed and least-developed countries). Each group will lead the discussion from their countries’ perspective on that week’s topic.

2) The specifics of the 2 written assignments will be handed out about 3 weeks before the due date.

3) For each week’s discussion topic there will be 2-3 peer-reviewed publications that you will have to have read before class and be prepared to discuss. In addition, you should also find additional papers on that week’s topic through Web-of-Science and/or Google Scholar.

THE AMERICANS WITH DISABILITIES ACT: 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 have a disability requiring an accommodation, please contact the Director of Counseling.

ACADEMIC DISHONESTY: For many years Aggies have followed a Code of Honor, which is stated in this very simple verse: "Aggies do not lie, cheat, or steal, nor do they tolerate those who do." Please refer to the Honor Council Rules and Procedures on the web http://www.tamu.edu/aggiehonor for more information.

ABSENCES: Information concerning absences can be found in the University Student Rules Section 7. The university views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused in the process as outlined in the University Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor's decision.

FAMILY EDUCATIONAL AND RIGHTS TO PRIVACY ACT (FERPA): FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your confidentiality.
MARS 625: GIS Modeling for Coastal Resources
FALL 2014
Tuesday 11:00 – 2:50, SAGC 600
Instructor: Dr. Wesley Highfield
Teaching Assistant: Ms. Helen Walters
Office: OCSB 364
Office Hours: By appointment/request
Office Hours: By appointment/request
e-mail: waltersh@tamu.edu
Phone: 409-740-4726

Course Description
This is an introductory course in geographic information systems (GIS). The course is concerned with development of thinking in terms of GIS for the management of coastal and other natural resource data. The emphasis will be on learning the fundamentals and application of GIS. To do this requires both software expertise and critical thinking. This course will require a time commitment, willingness to think/problem solve, and attention to detail.

Required Text
There is no required text. You will need to use the laboratory computers with GIS software. I have also secured a free, one-year license of ArcGIS for each of you enrolled in the class that can be installed on your personal computer (PC only—sorry Mac users). Much of the information needed for the software implementation of a GIS can be found on the web and/or through the software’s help menu. Two optional texts are Getting to Know ArcGIS Desktop, a tutorial workbook and The GIS 20: Essential Skills, both a workbook and reference text. You might wish to purchase one or both, but neither is required.

Course Requirements
1) Class attendance and participation
2) Weekly laboratory exercises
3) A final exam to determine your mastery of GIS, its fundamental usage, and spatial problem solving within a GIS.
4) A comprehensive final project

Grading
The weighting of course grades are as follows:
• Weekly lab exercises 35%
• Final project 35%
• Final exam 30%
I will follow the traditional grading scale of: A=90-100, B=80-89, C=70-79, D=60-69, F=<60

Weekly lab exercises will be assigned and submitted via e-campus. If you are unsure how to navigate e-learning please familiarize yourself with the interface. You will typically have one week to complete and submit the weekly assignments and late work will not be accepted without an approved excuse.
As demonstrated above, the final project is a large proportion of your grade. I would strongly suggest that you to begin thinking about this early in the course, preferably more than a week before the
proposals are due and definitely more than a week before the project is due. You will be given a week of class time to work on your project with feedback/help, but this should be a time to finalize/troubleshoot not begin your project work. The bar for projects has been set high by previous courses.

**Tentative Topics by Week**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9-2</td>
<td>Introduction to GIS/Introduction to ArcGIS</td>
</tr>
<tr>
<td>2</td>
<td>9-9</td>
<td>Spatial Data / Data Structures and Types</td>
</tr>
<tr>
<td>3</td>
<td>9-16</td>
<td>Coordinate Systems, Projections, and Transformations</td>
</tr>
<tr>
<td>4</td>
<td>9-23</td>
<td>Attribute Data and Data Queries</td>
</tr>
<tr>
<td>5</td>
<td>9-30</td>
<td>Creating Data: Vector Data Development</td>
</tr>
<tr>
<td>6</td>
<td>10-7</td>
<td>Joining Data: Table and Spatial Joins</td>
</tr>
<tr>
<td>7</td>
<td>10-14</td>
<td>Vector Analysis I: Geoprocessing</td>
</tr>
<tr>
<td>8</td>
<td>10-21</td>
<td>Vector Analysis II: Geocoding (Project Proposals Due)</td>
</tr>
<tr>
<td>9</td>
<td>10-28</td>
<td>Raster Analysis I: Environments &amp; Map Algebra</td>
</tr>
<tr>
<td>10</td>
<td>11-4</td>
<td>Raster Analysis II: Interpolations, Etc.</td>
</tr>
<tr>
<td>11</td>
<td>11-11</td>
<td>Imagery: Image Registration and Band Composites</td>
</tr>
<tr>
<td>12</td>
<td>11-18</td>
<td>Wrap-Up and Problem Solving / Project Work</td>
</tr>
<tr>
<td>13</td>
<td>11-25</td>
<td>Project Work</td>
</tr>
<tr>
<td>14</td>
<td>12-2</td>
<td>Project Presentations</td>
</tr>
<tr>
<td>12-17</td>
<td></td>
<td>Final Exam: 11am-1pm</td>
</tr>
</tbody>
</table>

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**Aggie Honor System**

Aggie Honor Code: “*An Aggie does not lie, cheat, or steal or tolerate those who do.*”

Upon accepting admission to Texas A&M University at Galveston, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations,
research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMUG community from the requirements or the processes of the TAMUG Honor System.

**Plagiarism**

Plagiarism consists of passing off as one’s own ideas, words, writings, etc., which belong to another. If you have any questions regarding plagiarism, please consult the latest issue of the *Texas A&M University Student Rules*, under the section “Scholastic Dishonesty.” I take academic dishonesty very seriously and if discover, I WILL pursue it.

**Statement on Absences**

Information concerning absences is contained in the University Student Rules Section 7 (see: [http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf](http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf)). The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments.

**Statement on the Family Educational Rights and Privacy Act (FERPA)**

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

**Statement on Course Evaluations**

The PICA (Personalized Instructor/Course Appraisal) is an online course evaluation for Texas A&M. We highly encourage you to complete an evaluation for each course on your schedule. Student input is a critical component used to improve curriculum and teaching. Each faculty member values your input to improve his/her methodology. Your comments can also significantly impact the mix and membership of faculty. The PICA website is available at [http://pica.tamu.edu](http://pica.tamu.edu), your howdy portal, or by scanning
GENERAL GOAL: Environmental Management Strategies have become a critical component of business and organizational strategies. This course explores the development and implementation of this management system.

Specific objectives may be found at the beginning of each module.

REQUIRED TEXTBOOK (Available from the campus bookstore or Amazon):


Contacting Dr. von Zharen: Please email Dr. v via eCampus mail on the MARS 675 class, which can be accessed through the eCampus/eLearning (used interchangeably) link on Howdy. Mail will be checked on a regular basis.

For questions that require a faster response, please email dr_vonzharen@msn.com. Dr. v is always available and ready to help!

LOGISTICS: READ CAREFULLY

1. DISTANCE LEARNING: The course is available via distance learning. All material will be posted in the form of Modules, in Power Point, in eCampus. The eCampus can be accessed through the eCampus link under the Howdy portal. Copy Dr. v. via eCampus on all assignments.

2. LOGISTICS MODULE; Module 0 is the Logistics module; read it carefully as well as these instructions.

3. DISCUSSION: All modules are available to you on eCampus. There will be discussion questions embedded in the modules. These questions are to be answered and exchanged with a partner. You must also critique and discuss your partner’s answers he/she exchanged with you.

4. PARTNER LIST; EXCHANGE WITH PARTNER; CHOOSING YOUR PARTNER EACH WEEK; Each week, you will exchange with a partner. The TA will provide a list of partners beginning with Module 1; however, if a student registers late or there are other changes, a revised Partner List will be generated. So keep your eyes open for any revised list.

5. MODULE QUIZ: Each module has a quiz at the end. You will take the quiz and exchange your answers with your partner (always copy Dr. v and the TA).

6. STUDENT QUIZ: You will also be developing five short answer questions (multiple choice or true/false – no fill-in-the-blank or sentence required answers) and answers from the required reading material noted at the beginning of each module. Exchange these with your partner for that module. When you provide the quiz answers, include the page number or slide number of the reading or other identification on which you found the material so that your partner can review her or his response more thoroughly.

7. COPY YOUR RESPONSES: Again, please copy all eCampus emails to Dr. v as well as to your partner and the TA.

8. DO NOT BE LATE: Remember, if you are late on an assignment, this is penalizing your partner. DO NOT procrastinate. Always contact Professor von Zharen immediately with any questions.

9. RATE OF MODULE COMPLETION: Beginning with the first week of class, a module should be completed at the rate of one per week minimum.

10. WEEKLY DUE DATES: All modules, exchanges, and discussions are due by Sunday of each week.
11. DON’T HAVE TYPOS OR GRAMMAR ISSUES: Use the spelling and grammar check programs on your computer and on eCampus; that includes checking for errors on any and all emails. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.

12. TIME REQUIRED EACH WEEK: For this course, a student is expected to dedicate a minimum of six hours per week. And have a positive attitude; Dr. v. worked hard to make this course enjoyable as well as informative.

MEETING IN PERSON: Dr. v. will host an optional weekly meeting for anyone who would like to discuss EMS issues in person. Typically, it will be on Tuesday (or Wednesday) afternoon, from 3:00 – 5:00 p.m., but she will post the date.

METHODOLOGY AND GRADING:

The objectives of the course will be met through readings, modules including Camtasia lectures, and involvement in specific projects:

1. Current Module, Reading, Development of and Response to Quizzes AND Critiquing and Evaluation of Colleagues’ Submission including final module – in other words, actively and effectively participating in all requirements by the due date (60%)
2. Research and Development of Interactive Environmental Management Strategy Module in PowerPoint with Camtasia and/or videos (35%)
3. Self-Evaluation (5%)
4. Bonus Modules: You may complete these at any time; if you don’t complete any bonus module, you will not be penalized. If you do complete a bonus module, you will earn extra credit depending on how many you complete.
5. Bonus Points: Bonus points may be posted throughout the semester. They are optional.

Current Module, Reading, and Quizzes:

Current Power Point Modules: Within each module, there is a quiz and discussions; evaluate your partner’s discussion and quizzes. All postings should be copied to Dr. v.

Research: Development of Interactive Environmental Management Strategy (EMS) Module in PowerPoint

Each student must select an EMS topic and develop a Power Point module with interactive components that emphasizes an area of interest to the student and would help meet a career goal and/or complements areas learned in the course. The module should be posted to eCampus by April 6th. The module should be both informative and enjoyable to read. Include any relevant reading assignments, quizzes, videos, among other materials.

The module must be critiqued and evaluated by all other members of the class, not just a partner; these critiques should be posted to everyone in the class. These critiques are due April 17th. The student then has until the last “regular” day of class to make any final changes to her or his module and post it again.

It is critical that the student cite all sources including photos and videos. If the idea or photo is not your own (if the information did not come from your own scientific, legal, or management research), then you must give a reference citation at the exact place where the quote, paraphrasing, bulleting, photo, etc., is inserted in the PowerPoint. If you did not take the photo or your research did not arrive at a conclusion
Critique and Evaluation of Colleagues’ Submission

Again, students must critique the questions and answers submitted. Development of species-specific modules should also be critiqued by everyone in the class.

Self-Evaluation

One of the most powerful complex structures of self-assessment in thinking is that of completing a global analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment, thereby raising your final grade by a certain percentage. The self-evaluation should be no fewer than two single-typed pages.

What Each Grade Represents:

F – The essence of F-level work is that the student demonstrated a pattern of non-critical thinking and/or failed to do the required work of the course. Typical characteristics of the work of a student who receives an F include: the student does not understand the basic nature of thinking in this subject area and does not display the related skills and abilities which are the heart of the course. The work at the end of the course is vague, imprecise, and unreasoned as it was in the beginning. There is little evidence that the student is genuinely engaged in the task of taking charge of her/his thinking. Many assignments appear to have been done pro forma with the student simply going through the motions without really putting any significant effort into thinking her or his way through them.

D – The essence of D-Level work is that it demonstrates only a minimal level of understanding and skill in critical thinking in the course area. D work at the end of the course shows only occasional environmental thinking skills. Most assignments are poorly done. There is little evidence that the student is “reasoning through the assignment in a critical manner. D work rarely shows any effort to take charge of ideas, assumptions, inferences, and intellectual processes. In general, D-level thinking lacks discipline and clarity.

C – The essence of C-level work is that it demonstrates more than a minimal level of skill, but it is also highly inconsistent with as many weaknesses as strengths. C-level work illustrates some but inconsistent achievement in grasping what environmental thinking is along with the development of modest critical thinking skills or ability. Though some assignments are reasonably well done, others are poorly done or at best are mediocre. On the whole, C-level work shows only modest and inconsistent reasoning and problem-solving skills.

B – The essence of B-level work is that it demonstrates more strengths than weaknesses and is more consistent in high level performance than C-level work. It nevertheless has some distinctive weaknesses though no major ones. B-level work represents demonstrable achievement in grasping what environmental thinking is. B-level work at the end of the course is, on the whole, clear, precise, and well-reasoned, though with occasional lapses into weak reasoning. The work demonstrates a mind beginning to take charge of its own ideas, assumptions inferences, and intellectual processes with the student often analyzing issues clearly and precisely.
A – The essence of A-level work is excellence overall with no major weaknesses. A-level work demonstrates real achievement in grasping what environmental thinking is, along with the clear development of a range of specific skills and abilities. The work at the end of the course is, on the whole, clear, precise, and well-reasoned. The A-level students analyzes issues clearly and precisely, formulates information clearly, usually distinguishes the relevant from the irrelevant, recognizes key questionable assumption. A-level work displays excellent reasoning and problem-solving skills and is consistently at a high level of intellectual excellence.

**BONUS MODULES**

These will be posted as “Bonus Modules” and then the title. Select any you choose. Complete the module and then submit an evaluation of the module including telling me what worked to help you learn the subject matter as well as suggestions on how to improve the module if necessary.

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APPENDIX E

Elective Courses’ Syllabi
OBJECTIVES: Interest in the science and management of biological invasions is rapidly expanding. This course explores the current knowledge base that focuses on vectors, impacts, theories and management. The course will include discussion of the positive and negative biological, ecological, economic, and societal impacts. It will look at:

a) the history and success rates of invasive species including a review of literature including exploration documents;

b) the characteristics of invasive species and the communities invaded;

c) why invasive species are tied with habitat-destruction as threats to natural areas;

d) what management theories have been applied or are being considered;

e) what regulatory strategies have been applied and their effectiveness; and

f) whether there are conflicting interests among stakeholders.

Particular emphasis will be on marine invasive species.

Specific Objectives may be found at the beginning of each module.

Contacting Dr. von Zharen: Please email Dr. v via WebCT mail on the MARS 648 class, which can be accessed through the eLearning link on Howdy. Mail will be checked on a regular basis. For questions that require a faster response, please email dr_vonzharen@msn.com. Dr. v is always available and ready to help!

LOGISTICS: READ CAREFULLY

- The course is available via distance learning. All material will be posted in the form of Modules, in Power Point, in WebCT Vista. WebCT can be accessed through the eLearning link under the Howdy portal. Copy Dr. v via WebCT on all assignments.
- Module 0 is the Logistics modules; read it carefully as well as these instructions.
- All modules are available to you on WebCT. There will be discussion questions embedded in most modules. These questions are to be answered and exchanged with a partner. You must also critique and discuss your partner’s answers he/she exchanged with you.
- Each module has a quiz at the end. You will take the quiz and exchange your answers with your partner.
- You will also be developing five short answer (IE-multiple choice or true/false – no fill-in-the-blank or sentence-answer) questions and answers from the required reading material noted at the beginning of each module. Exchange these with your partner for that module. When you provide the quiz answers, include the page number of the reading on which you found the material so that your partner can review her or his response more thoroughly.
- Again, please copy all WebCT emails to Dr. v as well as to your partner.
- The WebCT provides the list of all students enrolled; choose a partner for each module as quickly as possible. Try to work with a different partner each week.
- Remember, if you are late on an assignment, this is penalizing your partner.
- Beginning with the first week of class, a module should be completed at the rate of one per week minimum.
- All modules are due to your partner by Thursday of each week. Your partner’s response is due back by Sunday of each week.
- DO NOT procrastinate. Always contact Professor von Zharen immediately with any questions.
Use the spelling and grammar check programs on your computer. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.

METHODOLOGY AND GRADING:

The objectives of the course will be met through readings, modules including Camtasia lectures, and involvement in specific projects:

- Current Module, Reading, Development of and Response to Quizzes AND Critiquing and Evaluation of Colleagues’ Submission including final module – in other words, actively and effectively participating in all requirements by the due date (60%)
- Research and Development of Interactive Species-Specific Invasive Species Module in PowerPoint with Camtasia and/or videos (35%)
- Self-Evaluation (5%)
- Bonus Modules: You may complete these at any time; if you don’t complete any bonus module, you will not be penalized. If you do complete a bonus module, you will earn extra credit depending on how many you complete.

Current Module, Reading, and Quizzes:

Current Power Point Modules: Within each module, there is a quiz and discussions; evaluate your partner’s discussion and quizzes. All postings should be copied to Dr. v. as well.

Research: Development of Interactive Species-Specific Invasive Species Module in PowerPoint

Each student must select an invasive species or an invasive species topic and develop a PowerPoint module with interactive components that emphasizes three areas concerning that particular species: science, law, and management. The module should be posted to WebCT by April 1st. The module should be both informative and enjoyable to read. Include any relevant reading assignments, quizzes, videos, among other materials.

The module must be critiqued and evaluated by all other members of the class. These critiques are due April 21st. The student then has until the last “regular” day of class to make any final changes to her or his module and post it again.

It is critical that the student cite all sources including photos and videos. If the idea or photo is not your own (if the information did not come from your own scientific, legal, or management research), then you must give a reference citation at the exact place where the quote, paraphrasing, bulleted, photo, etc., is inserted in the PowerPoint. If you did not take the photo or your research did not arrive at a conclusion or a statistic, for example, then you must provide the source. Also, give a list of sources/references at the end of the presentation.

Critique and Evaluation of Colleagues’ Submission

Again, students must critique the questions and answers submitted. Development of species-specific modules should also be critiqued by everyone in the class.

Self-Evaluation
One of the most powerful complex structures of self-assessment in thinking is that of completing a global analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment, thereby raising your final grade by a certain percentage. For graduate students, the self-evaluation should be no fewer than four single-typed pages and no more than five single-typed pages.

**What Each Grade Represents:**

**F** – The essence of F-level work is that the student demonstrated a pattern of non critical thinking and/or failed to do the required work of the course. Typical characteristics of the work of a student who receives an F include: the student does not understand the basic nature of thinking in this subject area and does not display the related skills and abilities which are the heart of the course. The work at the end of the course is vague, imprecise, and unreasoned as it was in the beginning. There is little evidence that the student is genuinely engaged in the task of taking charge of her/his thinking. Many assignments appear to have been done pro forma with the student simply going through the motions without really putting any significant effort into thinking her or his way through them.

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**C** – The essence of C-level work is that it demonstrates more than a minimal level of skill, but it is also highly inconsistent with as many weaknesses as strengths. C-level work illustrates some but inconsistent achievement in grasping what environmental thinking is along with the development of modest critical thinking skills or ability. Though some assignments are reasonably well done, others are poorly done or at best are mediocre. On the whole, C-level work shows only modest and inconsistent reasoning and problem-solving skills.

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BONUS MODULES

These will be posted as “Bonus Modules” and then the title. Select any you choose. Complete the module and then submit an evaluation of the module including telling me what worked to help you learn the subject matter as well as suggestions on how to improve the module if necessary.

Statement on Academic Dishonesty. For many years Aggies have followed a Code of Honor: “Aggies do not lie, cheat, or steal, nor do they tolerate those who do.” As such, it is the responsibility of students and faculty members to help maintain scholastic integrity at the University by refusing to participate in or tolerate scholastic dishonesty. The Aggie Code of Honor and the Scholastic Dishonesty sections in the TAMUG University Rules handbook will be the standard upon which scholastic integrity is maintained in this course. Academic dishonesty infractions will result in failure of this course as a minimum sanction. Statement on American Disabilities Act. The American 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 contact the Director of Counseling and each of your course instructors. Absences. Information concerning absences can be found in the University Student Rules Section 7. The university views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student's absence as excused. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused in the process as outlined in the University Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor's decision. Family Educational and Rights to Privacy Act (FERPA). FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office.

NOTE: The Marine Policy site offers excellent research tools. For searches re the Marine Policy site, use Google at: http://www.tamug.edu/marinepolicy.

Spring 2012 Schedule

Week of: Due

1/16 Logistics Module
1/23 Module 1
1/30 Module 2
2/6 Module 3
2/13 Module 4
2/20 Module 5
2/27 Module 6
3/5 Module 7
3/12 Spring Break
3/19 Module 8
3/26 Module 9
4/1 Draft version of Interactive Species-Specific Invasive Species Module in Power Point Due
4/2       Module 10
4/9       Module 11
4/21      Critiques of Interactive Species-Specific Invasive Species Module in Power Point Due
4/23      Work on Final Project & Self Evaluations
5/1       Final Version of Interactive Species-Specific Invasive Species Module in Power Point Due & Self Evaluations Due
MARS 645/WFSC 645: Wildlife Law and Ethics, Distance Learning Course Guidelines

Professor. W.M. von Zharen, email: through eLearning; for urgent only emails: dr_vonzharen@msn.com
We will also meet on Tuesday afternoons for those wishing to discuss WLE issues.

DO NOT PROCRASTINATE: YOU CAN WORK AHEAD IN THE MODULES IF YOU HAVE POTENTIAL CONFLICTS!

Course Description. This distance learning course is designed to provide a broad overview of major wildlife laws including international regimes, federal law, select state laws, and cases dealing with conservation, preservation, and management of wildlife species. Ethical dimensions of wildlife law and management will also be explored. The goals of the course are two-fold: first, the student will be given a broad overview of wildlife law; secondly, the student will develop and/or improve analytical skills by looking at the position of all stakeholders in wildlife law issues including ethical conundrums.

Course Objectives: Specific Objectives may be found at the beginning of each module.

Prerequisites: Approval of faculty; enrollment is limited.

Course Materials:

Each module will contain the reading assignments for that module.

OPTIONAL:

- Federal Wildlife Laws Handbook, Musgrove, Flynn-O’Brien, Publisher: Government Institutes
- State Wildlife Laws, Musgrove and Stein, Publisher: Government Institutes

Specific Objectives may be found at the beginning of each module.

LOGISTICS: READ CAREFULLY and then REVIEW MODULE 0 – LOGISTICS CAREFULLY. The following provides only highlights; you must review Module 0 to learn all the logistics.

- Distance Learning: The course is available via distance learning. All material will be posted in eLearning (or eCampus – these are used interchangeably). Copy Dr. v. and the Teaching Assistant (TA) on all assignments.
- Logistics Module: Again, Module 0 is the Logistics modules; read it carefully as well as these instructions.
- eLearning for Modules: All modules are available to you on eLearning. There will be discussion questions embedded in most modules.
- Module Quiz: Each module has a quiz at the end (with a few exceptions). You will take the quiz and exchange your answers with your partner.
- Submission of Final Module: On APRIL 1st, you must submit your Final Module that you developed.
- Student Quiz Submission: You will also be developing five short answer (multiple choice or true/false – no fill-in-the-blank or sentence-answer) questions and answers from the required reading material noted in module. Exchange these with your partner for that module. When you provide the quiz answers, if applicable, include the page number of the reading on which you found the material so that your partner can review her or his response more thoroughly.
- Copy of Emails: Again, please copy all emails to me, the TA, as well as to your partner.
- Potential Partners’ List: The TA will make up a schedule of partners at the beginning of the course and post it to the class. Take a careful look at it to make sure we stay on track, e.g., someone may add the class after the list is made and there will have to be a revision. Therefore, KEEP UP with this.
• Technical Issues: Please remember that Bill Elizondo and Gerald Hughes, from CIS, are available to troubleshoot any technical problems.
• Don’t Procrastinate: Remember, if you are late on an assignment, this is penalizing your partner.
• Modules Per Week: Beginning with the first week of class, a module should be completed at the rate of one per week minimum.
• Again: DO NOT procrastinate. Always contact Professor von Zharen immediately with any questions. You may work through subsequent modules without waiting on your partner and when the time comes for that module to be exchanged, you’ve already completed your initial part. This flexibility allows you to make accommodations for your own schedule as potential conflicts arise.
• Spelling/Grammar: Use the spelling and grammar check programs on your computer. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.

METHODOLOGY AND GRADING: The objectives of the course will be met through readings, modules including Camtasia lectures, and involvement in specific projects:

• Current Module, Reading, Development of and Response to Quizzes AND Critiquing and Evaluation of Colleagues’ Submission including final module – in other words, actively and effectively participating in all requirements (65%)
• Research and Development of Interactive Wildlife Law and Ethics Module in PowerPoint with Camtasia and/or videos (30%)
• Self-Evaluation (5%)
• Bonus Modules: You may complete these at any time; if you don’t complete any bonus module, you will not be penalized. If you do complete a bonus module, you will earn extra credit depending on how many you complete.

Current Module, Reading, and Quizzes:

Current Power Point Modules: Within each module, there is a quiz and discussions; evaluate your partner’s discussion and quizzes. All postings should be copied to Dr. v. and the TA as well.

Research: Development of Interactive Wildlife Law and Ethics Module in PowerPoint – NOTE DUE DATES

Each student must select a wildlife and ethics topic and develop a Power Point module with interactive components. The module should be posted to eLearning by April 1st. The module should be both informative and enjoyable to read. Include any relevant reading assignments, quizzes, videos, among other materials.

The module must be critiqued and evaluated by all other members of the class by April 15th. The student then has until the last “regular” day of class to make any final changes to her or his module and post it again.

It is critical that the student cite all sources including photos and videos. If the idea or photo is not your own (if the information did not come from your own scientific, legal, or management research), then you must give a reference citation at the exact place where the quote, paraphrasing, bulleted, photo, etc., is inserted in the PowerPoint. If you did not take the photo or your research did not arrive at a conclusion or a statistic, for example, then you must provide the source. Also, give a list of sources/references at the end of the presentation.

Critique and Evaluation of Colleagues’ Submission
Again, students must critique the questions and answers submitted. Development of these wildlife law and ethics modules should also be critiqued by everyone in the class.

**Self-Evaluation**

One of the most powerful complex structures of self-assessment in thinking is that of completing a global analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment, thereby raising your final grade by a certain percentage. For graduate students, the self-evaluation should be no fewer than **three** single-typed pages and no more than five single-typed pages.

**What Each Grade Represents:**

**F** – The essence of F-level work is that the student demonstrated a pattern of non critical thinking and/or failed to do the required work of the course. Typical characteristics of the work of a student who receives an F include: the student does not understand the basic nature of thinking in this subject area and does not display the related skills and abilities which are the heart of the course. The work at the end of the course is vague, imprecise, and unreasoned as it was in the beginning. There is little evidence that the student is genuinely engaged in the task of taking charge of her/his thinking. Many assignments appear to have been done pro forma with the student simply going through the motions without really putting any significant effort into thinking her or his way through them.

**D** – The essence of D-Level work is that it demonstrates only a minimal level of understanding and skill in critical thinking in the course area. D work at the end of the course shows only occasional environmental thinking skills. Most assignments are poorly done. There is little evidence that the student is “reasoning through the assignment in a critical manner. D work rarely shows any effort to take charge of ideas, assumptions, inferences, and intellectual processes. In general, D-level thinking lacks discipline and clarity.

**C** – The essence of C-level work is that it demonstrates more than a minimal level of skill, but it is also highly inconsistent with as many weaknesses as strengths. C-level work illustrates some but inconsistent achievement in grasping what environmental thinking is along with the development of modest critical thinking skills or ability. Though some assignments are reasonably well done, others are poorly done or at best are mediocre. On the whole, C-level work shows only modest and inconsistent reasoning and problem-solving skills.

**B** – The essence of B-level work is that it demonstrates more strengths than weaknesses and is more consistent in high level performance than C-level work. It nevertheless has some distinctive weaknesses though no major ones. B-level work represents demonstrable achievement in grasping what environmental thinking is. B-level work at the end of the course is, on the whole, clear, precise, and well-reasoned, though with occasional lapses into weak reasoning. The work demonstrates a mind beginning to take charge of its own ideas, assumptions inferences, and intellectual processes with the student often analyzing issues clearly and precisely.

**A** – The essence of A-level work is excellence overall with no major weaknesses. A-level work demonstrates real achievement in grasping what environmental thinking is, along with the clear development of a range of specific skills and abilities. The work at the end of the course is, on the whole, clear, precise, and well reasoned. The A-level students analyzes issues clearly and precisely, formulates information clearly, usually distinguishes the relevant from the irrelevant, recognizes key questionable assumption. A-level work displays excellent reasoning and problem-solving skills and is consistently at a high level of intellectual excellence.
BONUS MODULES. These will be posted as “Bonus Modules” and then the title. Select any you choose. Complete the module and then submit an evaluation of the module including telling me what worked to help you learn the subject matter as well as suggestions on how to improve the module if necessary.

**Americans with Disabilities Act (ADA) Policy Statement**
The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law 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 contact the Counseling Office, Seibel Student Center, or call (409)740-4587. For additional information visit http://www.tamug.edu/counsel/services/dssprocedures.htm.

**Academic Integrity Statement and Policy**
"An Aggie does not lie, cheat, or steal or tolerate those who do. For further details, refer to the Honor Council Rules and Procedures on the web: www.tamug.edu/HonorSystem.

**Statement on Absences:** Information concerning absences is contained in the University Student Rules Section 7. The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines as well as student grievance procedures (Part III, Section 45). http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf

**Statement on the Family Educational Rights and Privacy Act (FERPA):** FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.
Course Description: International and U.S. federal and selected state fishery management strategies; history of fisheries, jurisdictional issues, eco-system approaches and case studies. Prerequisite: graduate status or approval of instructor.

OBJECTIVES: This course provides an overview of international and U.S. federal and selected state fishery management strategies. The course will introduce students to the basic principles of fisheries management, preparing the student to undertake future management decisions by emphasizing the approach and process that underlies sound management strategies. The course also includes discussion of the history of fisheries, jurisdictional issues, eco-system approaches to fishery management, voluntary fishery management regimes, and specific cases. The emphasis is on commercial and marine fisheries although many of the principles and ideas apply to recreational and freshwater fishers. Specific objectives are found at the beginning of each module; general objectives include:

1. Provide an overview of the approach and process of fisheries management strategies
2. Cover tools used to manage fish populations and their habitats
3. Learn from primary literature related to fisheries management
4. Develop an interest in scientific research related to fisheries management including the development of critical thinking skills

Again, specific Objectives may be found at the beginning of each module.

Contacting Dr. von Zharen: Please email Dr. v via BB mail on the Mars 658 class link which can be accessed through the eCampus link on Howdy. Mail will be checked on a regular basis. For questions that require a faster response, please email dr_vonzaren@msn.com. Dr. v is almost always available and ready to help!


All other readings may be found on the web.

LOGISTICS: READ CAREFULLY

1. AVAILABILITY OF MATERIALS: The course is available via distance learning. All material will be posted in the form of Modules, in Power Point, in BB Vista. BB can be accessed through the eCampus link under the Howdy portal. Your goal is to complete at least one module per week.
2. LOGISTICS MODULE: Module 0 is the Logistics modules; read it carefully as well as these instructions.
3. EXCHANGE OF MATERIAL: The modules will include discussion questions; they are to be answered and exchanged with a partner. You must also critique and discuss your partner’s answers he/she exchanges with you. Copy Dr. v. and Ms. Williams, the TA, via BB on all assignments.
4. MODULE QUIZ: Each module has a quiz at the end. You will take the quiz and exchange your answers with your partner when the module is completed.
5. YOUR OWN READING QUIZ: You will also be developing five short answer (multiple choice or true/false – no fill-in-the-blank or required sentence-answers) questions and answers from the required reading material noted at the beginning of each module. Exchange these with your partner for that module. When you provide the quiz answers, include the page number of the reading on which you found the material so that your partner can review her or his response more thoroughly.
6. CHOOSING WEEKLY PARTNER: To choose a partner, the first name on the roster will be partnered with the last name of the roster, for example Adams and Yin. Each week, work your way through the list, e.g., on week 2, Adams will be partners with Xavier. The BB provides the list of all students enrolled; choose a partner for each module as quickly as possible. Try to work with a different partner each week.
7. COPY DR. V AND THE T.A.: Again, please copy all BB emails to Dr. v., the T.A., as well as to your partner.
8. DON'T BE LATE: Remember, if you are late on an assignment, this is penalizing your partner.
9. RATE OF MODULES' COMPLETION: Again, beginning with the first week of class, a module should be completed at the rate of one per week minimum.
10. DO NOT PROCRASTINATE. Always contact Professor von Zharen or the TA immediately with any questions.
11. ERRORS: Use the spelling and grammar check programs on your computer. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.
12. For this course, a student is expected to dedicate **nine hours minimum** per week.

**METHODOLOGY AND GRADING:**
The objectives of the course will be met through readings, modules including Camtasia lectures, and involvement in specific projects:

1. Current Module, Reading, Development of and Response to Quizzes AND Critiquing and Evaluation of Colleagues’ Submission including final module – in other words, actively and effectively participating in all requirements by the due date (65%)
2. Research and Development of Interactive Fishery Management Strategies Module in PowerPoint with Camtasia and/or videos (30%)
3. Self-Evaluation (5%)
4. Bonus Modules and Bonus Points: You may complete these at any time; if you don't complete any bonus module or Bonus Points within Modules, you will not be penalized. If you do complete a bonus, you will earn extra credit depending on how many you complete.

**Current Module, Reading, and Quizzes:**

Current Power Point Modules: Within each module, there is a quiz and discussions; evaluate your partner’s discussion and quizzes. All postings should be copied to Dr. v. as well as the T.A., Ms. Jessica Williams.

**Research: Development of Interactive Fishery Management Strategy Module in PowerPoint**

Each student must select a fishery management topic and develop a Power Point module with interactive components that emphasizes three areas concerning that particular topic: science, law, and management. The module should be posted to BB by the date indicated in the schedule. The module should be both informative and enjoyable to read. Include any relevant reading assignments, quizzes, videos, among other materials.

The module must be critiqued and evaluated by all other members of the class. These critiques are due on the date indicated in the schedule. The student then has until the last “regular” day of class to make any final changes to her or his module and post it again.

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**BONUS MODULES & BONUS POINTS**

Bonus Modules will be posted as “Bonus Modules” with a title on the Home Page. Complete the module and then submit an evaluation of the module including telling me what worked to help you learn the subject matter as well as suggestions on how to improve the module if necessary. Bonus Points will be found within various required modules.

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Disabilities Act. The American 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 contact the Counseling Office, Seibel Student Center, or call (409) 740-4587. For additional information visit http://www.tamug.edu/counsel/services/dssprocedures.htm and notify each of your course instructors. Absences. Information concerning absences can be found in the University Student Rules Section 7: http://www.tamug.edu/stulife/Academic%20Rules/Rule%207.pdf. The university views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student's absence as excused. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused in the process as outlined in the University Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor's decision. Family Educational and Rights to Privacy Act (FERPA). FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office.

NOTE: The Marine Policy site offers excellent research tools. For searches re the Marine Policy site, use Google at: http://www.tamug.edu/marinepolicy.

Fall 2014 Schedule

Week: Due
1 Module 0 – Course Logistics
Upon completing the logistics module, you should:
Understand the logistics of the course
Understand the requirements of the course including the fact that it is not self-paced
Understand when the student-developed modules are due and the review process
Reply to Dr. v. and the TA that you have read and understood the syllabus and the requirements of the course
During the first week, have introduced one of the students in the class to the rest of the class and post appropriate photos
Be aware of the importance of interaction and discussion in the course
Make sure you have nine hours minimum per week to dedicate to this class
KNOW: Thou Shall NOT PROCRASTINATE!!!

2 Module 1 – The History of Fisheries Management
Objectives:
• To provide an overview of the history of Fisheries Management including events that led to modern day fisheries management strategies, e.g., evolution from low-tech, labor-intensive pursuits to factory trawlers and their impacts
• Discuss significant components incorporated into current fisheries management
• To be able to discuss the differences among various statutes, regulations, and management including how laws were promulgated and interpreted.
• To be able to discuss why fisheries management is necessary from an environmental and socioeconomic perspective
Module 2 – Fishery Management Process

Objectives: To be able to discuss –
• What is meant by “The Commons” in Fisheries Management (we began this discussion in Module 1)
• How did “The Commons” form the Fishery Management Processes?
• What does Open-Access mean in Fisheries Management?
• And explain criteria used in Fishery Management processes and why finding balance is difficult.

Module 3 – Stressors, Science, and Strategies in Fishery Management

At the end of this module, you should be able to:
- Discuss the multiple anthropogenic stressors on the marine ecosystem and the resulting implications (and reach out beyond by-catch/diftnets)
- Discuss international and federal regimes with “ocean responsibilities”
- Discuss the role of science in fisheries management: what role it has played, is playing, and should be playing
- Discuss strategies for an ecologically persistent, adaptive, resilient (we’ll touch on this again) and robust fishery – know the difference among these terms
- Define various fishery management terms such as the precautionary principle, population dynamics, and TAC and how they are used in fisheries management
- Discuss the conflict between commercial fishers and recreational fishers/anglers and their impacts on fish population and management strategies

Module 4 – International Fisheries Management

At the end of this module, you should be able to:
- Discuss the critical issues of jurisdiction including the international enforcement mechanism and be able to discuss specific jurisdictional issues that have come before the ICJ
- Discuss major international marine legal regimes including: all United Nation’s regimes (both in general such as UNCLOS I and III and the specific fisheries law such as the Straddling Stock Agreement; and voluntary management strategies)
- Identify specific problems encountered in international fishing
- Know the basic tenets of international legal regimes and why and how U.S. law embraces some of these principles

Module 5 – Federal Law

At the end of this module, you should:
- Be able to explain the basic concepts used in managing fisheries in Federal waters.
- Understand the role of the Fishery Management Councils in developing strategies for sustainability of U. S. fisheries.
• Be able to discuss the major laws and regulations utilized to guide Federal Fisheries Management including where they have succeeded and failed (and why).

6  Module 6 – Fisheries Management with a Focus on Texas’ Waters
Objectives:
- To understand the importance of fish and their role as environmental indicators
- To understand what fisheries management is from a state’s perspective, the state laws involved, how state regulations are made, and differences between federal and state law
- To determine how landing data are measured and what is excluded
- To compare two states’ management strategies and evaluate their effectiveness including how effectiveness is measured

8  Module 7 – Federal Fisheries Enforcement
Objectives:
- To be able to explain the important laws and regulations guiding federal fisheries enforcement.
- To be able to discuss the interactions between federal fisheries enforcement agencies such as NOAA and state agencies including jurisdictional issues.
- To be able to explain the organizations tasked with fisheries enforcement as their primary missions (you should have already learned quite a bit about Texas and the role of federal and state enforcement officials).
- To be able to discuss & understand the difficulties associated with fisheries enforcement

9  Module 8 – Multiple Stakeholders and Multiple Uses
Objectives:
- To understand the various fisheries’ stakeholders’ perspectives, problems, and solutions including ethical perspectives
- To understand the issues involved in multiple use of aquatic resources
- To understand the major points in assessing stakeholders’ role in fisheries management and the impact of differing perspectives

10  Module 9 – Dealing with Risks and Uncertainty
Objectives:
- Understand the basics of climate change and the impact to marine fishers
- Be able to discuss the Monte Carlo Approach
- Be able to discuss indicators, reference points, and control laws in reference to fisheries management
- Be able to discuss the basic of the Bayesian Information Criterion
- Be able to discuss the basics of the Gordon-Schaefer Logistics Growth Model
Be able to discuss why *wicked risk assessment* should be applied in development management strategies and where this application is more critical.

### Module 10 – Requirements of an Ecosystem Approach to Fishery Management (EAFM)

At the completion of this module you should be able to:

- Understand the principles of ecosystem approaches to fisheries
- Define what EAFMs are
- Discuss significant indicators
- Understand the major management tools
- Discuss the importance of Gear Modifications

### Module 11 – Management for a Resilient Fishery (out with sustainability, eh?)

**Objectives:**

- To know the critical differences and similarities between Sustainable and Resilient Fisheries
- To know various approaches for creating resilient fisheries including precepts of the MSC
- To be able to apply what you learned to real world problems through case studies and current examples in the news

### Module 12 – Socio-economic and Cultural Factors in Fisheries

**Objectives:**

- To understand social and cultural issues in fisheries management
- To understand how social and cultural issues in addition to economic issues pertain to fishers in general and, in particular, to aboriginal and First Nations peoples as well as artisanal fishers and women
- To understand how economic issues relate to and must be considered with social and cultural as well as ecological issues
- To understand what fisheries management strategies and laws require and/or incorporate social/cultural/economic data and consideration of these data
- To understand how changes and/or closures of fisheries have a cultural and social impact on fishers and those humans associated with the fisher and the fishery
- To understand how these issue apply, in particular, to specific fish/shellfish species such as sharks

### Module 14 – Final Version of Interactive Fishery Management Module in Power Point Due & Self Evaluations Due
I. Objectives: This course is designed to give an overview of the substantive areas of environmental law (EL). It is also designed to increase analytical and professional skills.

II. Method: The objectives are to be met through module readings, class discussion, class projects, exams, research, and critical thinking strategies. This class is going to be different from any class you have taken because the emphasis will be on actively developing your critical thinking. Everything we do will be designed to help you become better at thinking within the subject of EL. You will have to memorize information (e.g., on WebCT is posted a summary acronyms) but, more importantly, you will be required to internalize information by using it actively in every class and in class assignments. Each day we will be attempting to improve your thinking. Think of learning about EL as you would of learning to run a relay. To run a relay, you first need to learn the fundamentals of this sport at an elementary level and then practice those fundamentals during every practice session. The same is true of learning to think better within EL. You must be introduced to the fundamentals of sound thinking, then regularly practice those fundamentals. The quality of every decision you make will be directly determined by the quality of your reasoning abilities. In fact, the quality of your life in general will be determined by how well you think.

III. Flip Course: This course requires you to fully review every bit of information in the various modules prior to coming to class. You will be examined each day on the module material. If you haven’t prepared for class, you shouldn’t come to class; if you don’t come to class, you will fail the course.

IV. Prerequisites: Senior status or approval of faculty

V. Reading/Listening:
   - von Zharen, “How to Find the Law,” (HTFTL) Chapter in TEEX (on WebCT)
   - All assignments in each module

VI. Requirements and Grading: Grading:
   1. Three Non-cumulative Exams (10% each) (bring narrow scantrons): 15%
      and Chapters’ Quiz and Quiz Questions: 10%
   2. Daily Quizzes: 15%
   3. Class Projects/Presentation on Modules: 15%
   3. Daily Enlightened Discussion Group Analysis: 10% (you can’t discuss if you aren’t there) including group analysis topics noted below
   4. Critical Thinking Papers: 10%
   5. Self-Evaluation: 5%
   6. Impacts’ Journal: 5%
   7. Research Outreach: 15%

Module Quiz: Each day, you will be given a quiz on the previous day’s module. Additionally, beginning with Module 1 (on Day #2), you must submit 5 short answer questions (T/F and/or multiple choice) on the most important points you’ve learned from the module. You should also submit 1 longer answer that requires a few sentences to respond. Thus, there are 6 questions per module.

OTHER:
   Research Outreach: The research participation project consists of 15 hours of participation in an environmentally related research activity or activities, e.g., helping at a non-human animal shelter. Selection the subject area(s) must be made before the third class meeting. The subject area(s) should reflect interests of the student and preferably, one that will complement the student’s resume. You must provide a contact person – email and phone – for verification of your participation. (You may also participate in a research team with Dr. v. when appropriate.)
Critical Thinking (CT) Papers: You must write five critical thinking papers (1 page, single spaced, no more, no less) on the following topics and note the due date on the schedule. On the day the CT is due, students will divide themselves into a small group, changing groups for each paper. The group should take ten or so minutes to read the CT, discuss the merits of each one, write at least five reasons why one paper is chosen over another, and then vote on the best in that group. Copies of the “winning” paper should then be exchanged with another group, etc., until a final CT “best” paper is selected. A spokesperson from each group presents the group’s rationale for selecting the “best” CT (using the criteria written down in the group discussion).

You should begin researching these Critical Thinking Topics immediately rather than wait for the day they are due.

CT #1: Briefly discuss the problems with an adversarial system. Then choose one alternative to litigation (arbitration, mediation, etc., including one that you create if it based on solid information and rationalization) that you feel is the most effective method of the alternatives and why you think that one is the most effective.

CT #2: Discuss which approach to environmental protection is more effective: holistic management; precautionary approach management; management based on risk assessment. Use legitimate research but then use your critical thinking skills.

CT #3: Discuss whether you think the primary reason for our environmental problems is that there are too many human animals and why.

CT #4: Discuss which of the following is most effectively protected by specific laws and what mechanism makes the law effective: wetlands or a particular living species or aboriginal peoples in the U.S. or Canada. Use information from the modules as well as legitimate research articles.

CT #5: Read the following (you don’t need to read the appendices unless you wish to do so): http://www.iser.uaa.alaska.edu/Publications/2011_10-riskmanagement.pdf. Discuss another application of wicked risk management and why you would apply it to the scenario you selected?

Group Analysis Topics:

LOGISTICS: Students divide themselves into a different small group each day at the beginning of each class. Using the question posed below for each day of Group Analysis, there should be a twenty minute discussion. Then a spokesperson from each group presents the group’s assessment, summarizing its position in two to four minutes. Do not have the same spokesperson each time.

You may begin researching these Group Analysis Topics immediately rather than wait for the day they are due. Dr. v. and Ms. Williams will be listening to each group so be prepared; they do not want to see a student say, for example, “Now, what was the topic for today!” You may bring your notes.

Day 2: How might preservation education best be integrated into the institutions of higher learning?
Day 3: Discuss whether or not the survival of such higher values as truth, justice, beauty, and love justify doing what is necessary to ensure human animal survival.
Day 4: Assume that each group in the class is a community that has depended on the fishing by commercial fisheries. There is now a national movement to preserve the species for future generations. Should the decision be made by the commercial fisheries, public resource agencies, e.g., NOAA, the majority vote of the local community, or by the state or federal Congress? Identify the pros and cons for each group making the decision.
Day 5: Construct an argument based on an environmental issue in which: a) the premises are false but the conclusion is true; b) the premises are true but the conclusion is false; and 3) the conclusion is true but does not follow from the premises.
Day 6: Discuss whether non-human animals should have rights: why? Why not? And what rights?

Day 7: Based on the principle of commensuration between benefits and burdens, e.g., your benefits should be commensurate with the comparable burdens, discuss whether justice requires that the more wealth people have, the closer they should live to toxic wastes if they were instrumental in generating them or, if not.

Day 8: Thoreau states that “in Wildness is the preservation of the world.” Discuss what this means.

Day 9: “Eating meat is morally acceptable because it concerns diet, which is an affair of nature, not culture.” Develop a solid argument against this idea.

Environmental Impact Journal: Each student must keep an environmental impact analysis of her or his activities. The journal due date is the 15th of June. The journal will list in separate columns the requirements: 1) the date; 2) environmental aspects (the activity, product or service) in which the student participated or witnessed; 3) the environmental impact (positive or negative); and where possible, 4) the applicable law if there is one, and how any negative impact could be mitigated, limited, or eliminated. An entry should include the intersessional and through the due date. Submit this journal via eLearning; therefore, keep the journal in a computer file folder.

Self Evaluation: One of the most powerful complex structures of self-assessment in thinking is that of completing an analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment, thereby raising your final grade by a certain percentage. The self-evaluation should be no more than three pages and no fewer than two for undergraduates; four pages for graduate students. Details of what each grade represents can be found on the course WebCT.

ALL MATERIALS UNLESS NOTED ABOVE ARE DUE THE 15th DAY OF JUNE AND MUST BE SUBMITTED THROUGH eLearning.

GRADUATE STUDENTS: Graduate students have additional requirements. These include:

1. Presenting a complementary topic on an assigned module
2. Presenting a case brief on two court cases highlighted in an assigned module
3. Developing fifteen (as opposed to five) short answer questions for each module
4. Mentoring assigned undergraduate students as evidenced by undergraduate “assessment” of mentoring
## VII. Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Module/Reading</th>
<th>CT/Analysis/Exams</th>
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<tbody>
<tr>
<td>Day 1</td>
<td>Assignments/HTFTL Cont.: The Legal Process</td>
<td></td>
<td>How to Find the Law (HTFTL)</td>
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<tr>
<td>Day 2</td>
<td>Legal Process Module Continued</td>
<td>Module 1: How to Find the Law</td>
<td>Mini Exam and Discussion</td>
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<td></td>
<td>Environmental Administrative Law</td>
<td>Module 2: Legal Processes/Administrative Law</td>
<td>HTFTL; Legal Process</td>
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<td></td>
<td>Posted Article: How To Find the Law</td>
<td>Day 2 Group Analysis</td>
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<tr>
<td>Day 3</td>
<td>Review Module</td>
<td>Module 3: Review Module</td>
<td>Mini Exam and Discussion</td>
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<td></td>
<td>Georgetown Administrative Law</td>
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<td>Continued</td>
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<td></td>
<td>Module 3</td>
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<tr>
<td>Day 4</td>
<td>Exam: HTFTL &amp; Modules 1-3</td>
<td>Module 4: Air/Toxins</td>
<td>Exam #1, HTFTL &amp; Topics/Modules 1-3</td>
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<tr>
<td>Day 5</td>
<td>Water Module 5</td>
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<td>Day 5 Group Analysis</td>
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<td>Day 6</td>
<td>Toxic Module 6</td>
<td>Module 6: Toxic</td>
<td>Mini Exam and Discussion</td>
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<td>Day 6 Group Analysis</td>
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<td>CT #2</td>
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<tr>
<td>Day 7</td>
<td>Nat. Resources Module 8</td>
<td>Module 7: Energy</td>
<td>Mini Exam and Discussion</td>
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<td>Day 7 Group Analysis</td>
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<td>Day 8</td>
<td>Exam #2: Modules 4-7</td>
<td>Module 8: Natural Res.</td>
<td>Exam #2: Topics/Modules 4-7</td>
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<td>Nat. Resources Module 8</td>
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<td>CT #4</td>
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<td>Day 9</td>
<td>Internat. Law Module 9</td>
<td>Module 9: International Law</td>
<td>Mini Exam and Discussion</td>
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<td></td>
<td>Marine Specific Laws</td>
<td>Read the William and Mary Article Noted under Readings</td>
<td>Group 9 Group Analysis</td>
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<td>CT #5</td>
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<tr>
<td>Day 10</td>
<td>Exam #3: 8-9 + Marine Specific Laws</td>
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<td>Exam #3: Topics/Modules 8-9 + Marine Specific Laws</td>
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**Statement on Academic Dishonesty:** For many years Aggies have followed a Code of Honor: "Aggies do not lie, cheat, or steal, nor do they tolerate those who do." As such, it is the responsibility of students and faculty members to help maintain scholastic integrity at the University by refusing to participate in or tolerate scholastic dishonesty. The Aggie Code of Honor and the Scholastic Dishonesty sections in the TAMUG University Rules handbook will be the standard upon which scholastic integrity is maintained in this course. It is the responsibility of the student to familiarize themselves with the standards, definitions, and procedures concerning academic dishonesty. Academic dishonesty infractions will result in failure of this course as a minimum sanction. **Statement on the Americans with Disabilities Act of 1990 (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 contact the Director of Counseling for further advising. Statement on Absences Information are contained in the University Student Rules § 7. The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs or his/her designee has verified the student's absence as excused. Consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused per the process outlined in the University Student Rules, the student must be given the opportunity to make up work that was missed. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, §49, Unexcused Absences, for more information about appealing an instructor’s decision. Statement on the Family Educational Rights and Privacy Act (FERPA) is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

FOR GRADUATE STUDENTS:

Please see me for the requirements.
MARS 640 Environmental Administrative Law – Distance Learning
Professor W.M. von Zharen

Distance Learning: Email – via eCampus or, if urgent: dr_vonzharen@msn.com; virtual office hours almost every day (and weekly Wednesday afternoon meetings as a group are available if a student wishes to participate)

OVERVIEW:
In the past three decades, there has been a phenomenal growth in the complexity and numbers of legislative enactments that regulate the way government interacts with its citizens and how government agencies make decisions, keep records, and disclose and protect information. Administrative Law concerns the legal checks that are used to control and limit the powers of governmental agencies. This course is not designed for law students; it is specifically designed for MMRM students, or undergraduate MARS students, with an understanding of basic principles of law and no or limited experience evaluating case law. This course will provide an introduction to administrative law, and familiarize you with notable administrative case law. The course deals not with the substantive law peculiar to any agency but rather with the common process by which that law is produced, applied, and challenged. This is a “rules” course that examines the most important sections of federal and state statutes that impose procedures for the promulgation of regulations and the decision of cases before administrative tribunals. Emphasis will be on environmental issues.

This course may help you decide whether you are interested in pursuing a legal career. The course syllabus includes a weekly/module reading requirement, and response to a series of questions related to the topic and quizzes. When responding to the questions, keep in mind that in some instances there is no “right” or “wrong” answer; the quality of your response may be related to your ability to reference pertinent case law from the text to back up your response.

OBJECTIVES/LEARNING OUTCOMES:
1. To understand the concept of administrative law including statutes, regulations, powers, case law, and specific administrative law principles and rules
2. To be able to identify and use sources of federal regulations
3. To be able to use Lexis/Nexis
4. To develop additional administrative law modules that focus on an area of personal interest

Specific objectives are found at the beginning of each module.

PRE REQUISITES: Graduate Standing.

TEXTS:
“How to Find the Law” (von Zharen) posted on eCampus.


LOGISTICS:
- REVIEW CAREFULLY MODULE 0 – LOGISTICS. The following are a few points but again, review carefully Module 0.
• The course is available via distance learning. All material including web links will be posted in WebCT Vista excluding the textbooks. WebCT can be accessed through the eCampus link under the Howdy portal. Copy Dr. v and the TA, Jessica Williams via WebCT on all assignments. The course is available via distance learning.

• Each student should select a partner for every module, switching partners as often as possible. Responses to assignments will be reviewed by your fellow classmates. If more than two students are enrolled, exchange of papers should be with a different colleague until or unless repetitions are necessary. The students will be in charge of a) noting who is enrolled; and b) develop and follow through with a strategy to exchange papers for critiquing. Remember to always copy me on your communications including critiques. (If the class enrollment is uneven, then one student will have to read the required papers for two students for a module; then this task should be shifted to the next student for the next module, etc.)

• Begin the first module immediately with the goal of completing and posting to your partner via WebCT all assignments for that module/week by Thursday of that week. Critiques by the partner must be posted by the following Sunday evening with a copy to Dr. v and the TA, Jessica Williams. This is NOT a self-paced course.

• The length of your responses should reflect your ability to succinctly address the issue in your own words. There may be occasions when you need to quote or paraphrase; if you paraphrase or quote, always cite the source.

• The evaluator, that is, the one who critiques the papers from a module, must provide feedback to the writer that a) allows the writer to improve her or his critical thinking – the critique should be approximately ½ page of comments; b) assigns the writer up to 10 points depending on the evaluator’s opinion of the quality of critical thinking. Remember, we are all attempting to help each other improve our critical thinking skills as well as learn administrative law.

• When you post to eCampus, your response to an assignment in a module, the subject line should reflect the following examples:
  SUBJECT: Module Two Response by Ms. Baker and To Be Critiqued by Ms. Crumb.
  SUBJECT: Module Two Response by Ms. Baker and Critiqued by Ms. Crumb.

• There may be pop quizzes throughout various modules, depending on how well students are mastering the material without quizzes. If given, they would be available on eCampus.

• Each student must post and exchange five short answer questions (true/false and/or multiple choice) and answers on each module’s reading/listening assignment. These questions should reflect what you feel are the most salient points from the module material. Exchange your questions with your module partner but exclude the answers until after the partner has responded with her/his own answers to the questions. When answers are exchanged, include page or slide number or other reference where possible. As always, post a copy to me of the response.

• FINAL MODULE. The final module is your research project: development of an environmental administrative law module on a particular area that you found interesting and/or that you think would be of value to your colleagues. Be as creative as possible; you may use Power Point. The module should be posted to eCampus on November 1st and critiques of the module by everyone in the class is due by November 29th. The student who originated the module must make any changes to the module prior to the “last” day of scheduled class for this class. It is critical that the student cite all sources including photos. If the idea or photo is not your own (if the information did not come from your own research), then you must give a reference citation at the exact place where the quote, paraphrasing, bulleted, photo, etc., is inserted. If you did not take the photo or your research did not arrive at a conclusion or a statistic, for example, then you must provide the source. Also, give a list of sources/references at the end of the presentation.

  If you can find videos or other information that makes the presentation “come alive,” please do so. There are excellent alternatives so explore them so that the module is both educational and fun.

• There are optional bonus modules.

• **Remember, if you are late on an assignment, this is penalizing your partner.**

• Beginning with the first week of class, a module should be completed at the rate of one per week.
• DO NOT procrastinate. Always contact Dr. v. immediately with any questions.

• Use the spelling and grammar check programs on your computer. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.

Self-Evaluation

One of the most powerful complex structures of self-assessment in thinking is that of completing a global analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment, thereby raising your final grade by a certain percentage. For graduate students, the self-evaluation should be no fewer than four single-typed pages and no more than five single-typed pages.

METHODOLOGY AND GRADING: The objectives of the course will be met through readings, lectures, and involvement in specific projects including:

5. Writing Assignments, Exchanges, and Critiques; Quiz Exchange/Critiques (65%)
6. Development of Final Administrative Law Module (20%)
7. Dr. v.’s Quizzes (10%) (If students are doing well in the course, you will not have these quizzes and the 10% will be added to your grade.)
8. Self-evaluation (5%)

THE AMERICANS WITH DISABILITIES ACT: 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 have a disability requiring an accommodation, please contact the Director of Counseling. ACADEMIC DISHONESTY: For many years Aggies have followed a Code of Honor, which is stated in this very simple verse: “Aggies do not lie, cheat, or steal, nor do they tolerate those who do.” Please refer to the Honor Council Rules and Procedures on the web http://www.tamu.edu/honorsystem/ for more information. ABSENCES: Information concerning absences can be found in the University Student Rules Section 7. The university views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student’s absence as excused. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused in the process as outlined in the University Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor’s decision. FAMILY EDUCATIONAL AND RIGHTS TO PRIVACY ACT (FERPA): FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your confidentiality.
MARS 660: Environmental Alternative Dispute Resolution

Prof. W.M. von Zharen, Ext. 4485 (leave name & number slowly and clearly), dr_vonzharen@msn.com
or
Jessica Williams, Graduate Assistant, jcagmercer@aol.com
(3 credits w/ possible Certification to Texas Mediation Guidelines)

Location. OCSB 200A- “Fish Bowl”

*DL and College Station students may participate via Centra or equivalent as needed*

Time. Monday, 13th - afternoon, beginning 4:15 p.m. - 7:00 p.m.
Tuesday, 14th - afternoon, beginning 4:15 p.m. - 7:00 p.m.
Wednesday, 15th - afternoon, beginning 4:15 p.m. - 7:00 p.m.
Thursday, 16th - morning, beginning 9:00 a.m. - 12:00 p.m.
Friday, 17th - morning, beginning 9:00 a.m. - 12:00 p.m.
Monday, 20th - morning, beginning 9:00 a.m. - 12:00 noon - Kilgore, mediator
Tuesday, 21st - morning, beginning 9:00 a.m. - 12:00 noon
Wednesday, 22nd - afternoon, beginning 4:15 p.m. - 7:00 p.m. - Amerson, mediator
Thursday, 23rd - afternoon, beginning 4:15 p.m. - 7:00 p.m.
Friday, 24th - afternoon, beginning 1:00 p.m. - Duvall, mediator trainer, Possible Certification to the State of Texas Mediation Guidelines
Saturday, 25th - morning, beginning 8:00 a.m. to 12:15 p.m. - Duvall, mediator trainer, continuation of training

Catalogue Description. This course provides an overview of alternative dispute resolution/conflict resolution as used in addressing environmental issues. It includes discussion of the fundamentals of the court system, description of the different alternatives for conflict resolution, a strong focus on mediation techniques, and an optional opportunity for mediation certification to Texas Guidelines.

Method. The objectives are to be met through class lectures, class projects, and mediation participation. This class is going to be different from any class you have taken because the emphasis will be on actively developing neutrality as well as facilitation and negotiation skills. This course first explores the traditional method of settling disputes: the court system. It then reviews the increasingly visible dispute resolution alternatives. Its approach is to view ADR/conflict resolution as forward-looking -- designed to anticipate future policy or practical conflicts, as well as retrospective and reactive to existing disputes. The course presents the clear advantages of alternatives such as promoting effective joint fact-finding techniques producing facts faster and with greater accuracy. It provides strategies for developing a mutually acceptable agenda and methodology, one that shifts from a “position-based” approach to a broader “interest-based” resolution process on the merits. Finally, it applies this knowledge to case-specific environmental and other conflicts through hands-on participation. You will be required interact through role-play models. This course includes the intercessional (including archived sessions for review), a weekend session for certification, and distance learning mediation exercises during the 1st summer semester. Certification will be team-taught by Dr. v and the nationally-recognized conflict resolution specialist, Ms. Suzanne Duvall. The skills learned in this class can be applied in your home, business, and classes.

Rationale. Because environmental issues and law were born and raised in the arena of adversarial combat, the traditional litigative process is far from ideal. Mediation attempts to address this problem. The popularity of mediation is evident, e.g., Federal agencies are required to include mediation as the first option in conflict resolution. The state of Texas requires mediation before litigation in many instances. Texas A&M’s Human Resources, in “Calling All Mediators,” notes the advantage of mediation (March 2002).

Reading. PRIMARY: Mediation: Principles and Practice, Kovach, 3rd Edition &
Course Requirements and Grading. The Requirements for this graduate-level seminar include:

1. 60%: Constructive, enlightened class participation based on reading assignments, including:

   - Submission of four (4) role-playing hypotheticals, the last two of which must emphasize an environmental issue with a five to eight stakeholders (the other two may be environmentally related if you choose) (20%)
     - Examples of a hypothetical role playing is a neighbor throws trash over a fence or someone at a meeting spills coffee on a shirt
     - The hypothetical events must have problem and a resolution that does not appear on the surface, which requires a mediator
     - Approximately 20-25 minutes
   - Presentation of one chapter of textbook with “enhancing” exercise(s); I will be looking for proof that the chapter has been read by all students as well as keeping us alert. Remember, the students must come prepared; therefore, you don’t need to regurgitate the chapter; enhance the chapter with your own creativity. The presentation will be timed and you will have X amount of time depending on the number of students in the class. Typically, you will have a maximum of twenty minutes. Interactive PowerPoint Presentations may be created and used. Students have been assigned Chapters, which are located in the course calendar. (20%)
   - Presentation of one sector of “Major Environmental Law and Dispute Mechanism Examples” (major law applicable to fresh water, land, ocean, air, as well as major international environmental regimes); the following are the possible combinations; you can form teams to present the material. The date of the presentation can be found in the course calendar.
     - TITLE 7: Agriculture
     - TITLES 16 and 30: Conservation; Mineral Lands and Mining
     - TITLE 33: Navigation and Navigable Waters
     - TITLE 42: Public Health and Welfare
     - TITLE 49: Shipping; Transportation
     - Federal Constitution: Commerce, Property, Spending, Standing, Takings Clause and 10th Amendment
     - International Environmental Law and Standards
       - ICRW (Whaling)
       - Law of the Sea, 1982
       - CITES (Endangered Species)
       - Straddling Stocks Agreement
       - Kyoto Declaration, 1995
       - Migratory Bird Convention
       - Pelagic Drift Nets 1 & 2
       - RAMSAR Convention
       - ICES Convention
       - Biodiversity Convention
       - Montreal Protocol
       - ISO 14001
       - Marine Stewardship Council
       - International Code of Conduct for Responsible Management

You can find a summary and full text of federal environmental laws in the Dwyer book noted above. I have an old copy in my office and I also have a disc available. We will provide copies through the library that can be used during class. Once you select a particular TITLE/topic, you then must select one example of a related seminal environmental case; this may take the form of a case litigated (Dwyer lists seminal cases) or mediated. For each, provide: 1) the facts (be succinct and clear as to the parties involved; 2) the issues; 3) the applicable law; 4) if it is a court case, then the court’s decision and, more importantly, its reasoning; otherwise, give the outcome of the mediation/arbitration or other mechanism) The presentation will be timed and you will have X amount of time depending on the number of students in the class. Typically, you will have a maximum of fifteen to twenty minutes.
2. 5%: Self Evaluation. One of the most powerful complex structures of self-assessment is completing an analysis of the strengths and weaknesses of your overall performance. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done “D” work on the course, then you will receive an “A” on the self-assessment; your final grade will be raised by a certain percentage. Criteria may be found on WebCT. (5%)

3. 10%: Final Review on Environmental Laws, Court System, and Mediation Principles

4. 25%: Participation after the intercessional in 6 mediations with:
   - No more than 3 family/personal mediations
   - No more than 3 office/business/ mediations
   - A one-page description for each mediation in which you evaluate the mediation from all stakeholders’ perspectives. Include a description of each mediation in which you were involved: 1) brief overview of the type of mediation; 2) identification of your role; 3) observations about what was effective and what wasn’t and why; 4) other lessons learned; 5) other comments. The description should be divided into those categories. The length of each entry should be no more than one, single-spaced typed page.

Course Schedule: Topics and Reading Assignments.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Reading</th>
<th>Presentation Assignments/Submission, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Assignments</td>
<td></td>
<td>• Dr. v: Litigation Process Mediation Process</td>
</tr>
<tr>
<td>5/13/12</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day 2</td>
<td>Chapter 2</td>
<td>Chapter 2</td>
<td>• Present Ch. 2 Dr. v. International Law</td>
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<tr>
<td>5/14/12</td>
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<tr>
<td>Day 3</td>
<td>Chapter 3</td>
<td>Chapters 3 &amp; 4</td>
<td>• Present Ch. 3 Chapter 4: Eliminate B.2., C. 1-3 and D. 1-4 Hypothetical #1</td>
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<td></td>
<td>Chapter 4</td>
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<tr>
<td>Day 4</td>
<td>Chapter 5</td>
<td>Chapters 5 &amp; 6</td>
<td>• Present Ch. 5 Present Ch. 6 Team 1: Present TITLE 7: Agriculture-</td>
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<td></td>
<td>Chapter 6</td>
<td></td>
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<tr>
<td>Day 5</td>
<td>Chapter 7</td>
<td>Chapters 7 &amp; 8</td>
<td>• Present Ch. 7 Present Ch. 8 Team 2: Present TITLES 16 &amp; 30: Conservation; Mineral Lands and Mining</td>
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<td></td>
<td>Chapter 8</td>
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<tr>
<td>Day 6</td>
<td>Mediator: Mr. Kilgore</td>
<td>Chapter 9 (Begin presentation at 9:00 a.m. and end at 9:20 max; Mr. Kilgore will be presenting afterward)</td>
<td>• Present Chapter 9 Hypothetical # 2</td>
</tr>
<tr>
<td>5/17/12</td>
<td>(Each student must have at least 3 questions for him.)</td>
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<td></td>
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</tbody>
</table>
| Day 7 | 5/21/12 | Chapter 10 | Chapters 10 & 11 | - Present Chapter 10  
- Present Chapter 11, Eliminate G.  
- Team 3: Present TITLE 33: Navigation and Navigable Waters |
| Day 8 | 5/22/12 | Mediator: Mr. Dan Amerson  
(Each student must have at least 3 questions for him.) | - Team 4: Present TITLE 42: Public Health and Welfare-  
- Hypothetical #3 (required environmental)  
- Team 5: Present TITLE 49: Shipping; Transportation  
- Team 6: Present Federal Cons. |
| Day 9 | 5/23/12 | Chapter 12 & 13  
Chapter 14  
(TWENTY MINUTES MAX FOR EACH; remember, students have already read the chapters) | Chapter 12, 13, & 14  
- Present Chapters 12 & 13, Eliminate 12, C.  
- Present Chapter 14, Eliminate A. 5. *  
- Hypothetical #4 (required environmental) |
| Day 10 | 5/24/12 | Any Remaining Presentations  
Introduction of Ms. Duvall - Certification to State of Texas Mediation Guidelines Session | |
| Day 11 | 5/25/12 | Certification Session | |

*All other materials must be submitted by 15th of June (unless other arrangements have been made).*

**Statement on Academic Dishonesty:** For many years Aggies have followed a Code of Honor: “Aggies do not lie, cheat, or steal, nor do they tolerate those who do.” As such, it is the responsibility of students and faculty members to help maintain scholastic integrity at the University by refusing to participate in or tolerate scholastic dishonesty. The Aggie Code of Honor and the Scholastic Dishonesty sections in the TAMUG University Rules handbook will be the standard upon which scholastic integrity is maintained in this course. It is the responsibility of the student to familiarize themselves with the standards, definitions, and procedures concerning academic dishonesty. Academic dishonesty infractions will result in failure of this course as a minimum sanction. **Statement on the Americans with Disabilities Act of 1990 (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 contact the Director of Counseling for further advising.

**Statement on Absences** is contained in the University Student Rules § 7. The University views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs or his/her designee has verified the student’s absence as excused. Consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines. If the absence is excused per the process outlined in the University Student Rules, the student must be given the opportunity to make up work that was missed. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, §49, Unexcused Absences, for more information about appealing an instructor’s decision. **Statement on the Family Educational Rights and Privacy Act (FERPA)** is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, consult the Admissions & Records Office. Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.
"It is said that the Austrian social critic Karl Kraus, in answer to a question from a student as to how one could study business ethics, declared that one could not, one had to decide on one or the other."

Description

This course provides an introduction to the field of ethics in international environmental business transactions. Students will be exposed to various sources of morality (ethical traditions and theories, ethical decision-making models) applicable to business and management. We also will analyze a wide array of critical ethical issues, dilemmas, and challenges currently facing specific business operations (e.g., gene cloning). The objectives are to be met through critical thinking strategies and research.

This class is going to be different from any class you have taken because the emphasis will be on actively developing your thinking and evaluating that thought process. Everything we do will be designed to help you become better and better at thinking within the subject of ethics in international environmental business transactions. This will be accomplished through a web-based process, class interaction, development of a business ethics module, and self-evaluation. Most importantly, you will be required to internalize information by using it actively in every class assignment. Each assignment is designed to improve your thinking and look at issues through multiple perspectives. Consider thinking about ethics in international environmental business transactions as you would of learning to run a relay. To run a relay, you first need to learn the fundamentals of this sport at an elementary level and then practice those fundamentals during every practice session. The same is true of learning to think better within ethics. You must be introduced to the fundamentals of sound thinking. Then you must regularly practice those fundamentals. Each assignment has been designed with the primary purpose of helping you develop your thinking or reasoning skills. Why is this important? The quality of every decision you make will be directly determined by the quality of your reasoning abilities. In fact, the quality of your life in general will be determined by how well you think in general.

Objectives/Learning Outcomes:

1. To develop the capacity to identify ethical issues, dilemmas, and challenges in ethics in international environmental business transactions.

2. To further develop critical thinking skills.

3. To develop familiarity with important sources of morality that can provide tools to clarify, analyze and strategize around ethical issues in business.

4. To gain confidence in making moral arguments about matters relevant to managerial decision-making, corporate policy-making, and the role of business in protection of the environment.

5. To clarify and develop one's own personal "business ethic" as an important dimension of the sense of vocation and professionalism that should develop for each student.

6. To become literate in the use of electronic technology as a means to access information and communicate with each other in the class.
PREREQUISITES: None: However, please read “How to Find the Law” (von Zharen) posted on WebCt.

LOGISTICS:
- The course is available via distance learning. All material including links will be posted in WebCT Vista. Copy Dr. v via WebCT on all assignments.
- Pace yourself so that at least one module is completed each week. DO NOT procrastinate. Always contact Professor von Zharen immediately with any questions.
- Use the spelling and grammar check programs on your computer. Bad spelling and grammar make it difficult to read and understand your work and may result in a poor grade. If you have trouble writing and footnoting for legal papers, 1) see The Elements of Style by Strunk and White (available online); 2) look over the “Ocean Governance” article by von Zharen and available on Lexis; and 3) ask someone to proofread your papers.
- If more than one student is enrolled, each student is in charge of rotating “partners” for the quizzes and all other material that should be exchanged. The WebCT will provide a list of all students enrolled. Remember, if you are late on an assignment, this is penalizing your partner.

METHODOLOGY AND GRADING: The objectives of the course will be met through modules which include readings and lectures, and involvement in specific projects:

- Modules’ Assignments and Evaluation/Critiques (70%)
- Development of an Ethical/Business Transaction Module in PowerPoint (25%)
- Self-evaluation (5%)

MODULE ASSIGNMENTS - 70%: There are Required Modules as well as Bonus Modules involving reading and/or listening to speakers. Respond to the issues/assignments by focusing on:

1) What are the key concepts presented?
2) How would you elaborate your understanding of the concepts?
3) What is the author/speaker looking at and how is she/he seeing it - the point of view?
4) What information did the author/lecturer use to come to the conclusions?
5) What questions are emerging for you as we think our way through the issue and what was the key question on the mind of the author when she/he wrote/lectured on this topic?

Good thinking is thinking that effectively assesses itself. As a critical thinker, you should not simply state the problem. You should assess the clarity of your own statement. Do not merely gather information. Check it for its relevance and significance. Do not simply form an opinion; or else points will be deducted. Substantiate and "think through" every sentence you write. And make certain that these sentences flow clearly, precisely, and with relevance. A page limit is given for each module.

When you have completed the Module Assignment, send/post one copy of your response to Dr. v. Exchange responses with your “partner” for that module so that your partner can evaluate and critique your response in order to help you continually improve your critical thinking and you must do the same for your partner’s response. Also, post/send your response to everyone else in the class; your non-partner classmates will have the opportunity to critique your response as well; however, this is optional and if additional critiques are completed, bonus points will be awarded.

Again, you are responsible for reading and critique ONLY your partner for that particular Module. However, post these exchanges to everyone in the class so that others can critique responses for bonus points.
To keep these postings in order, place in the title of your message the following as appropriate:

If you are sending your response to your partner:

RESPONSE TO MODULE 1 WRITTEN BY ______ (identify yourself) AND TO BE CRITIQUED BY ______ (identify your partner).

If you are sending your critique of your partner’s response:

CRITIQUE OF MODULE 1 WRITTEN BY ______ AND CRITIQUED BY: __________________

Critiquing of your partner’s work is extremely important; make sure you identify the strengths and weaknesses in the various categories such as:

· Clarity: Are you clear about your position? Could you state it in other words?
· Precision: Could you be more precise?
· Accuracy: How can you or I check to see if the information you are using is accurate?
· Relevance: How is what you are saying relevant to the question on the floor?
· Depth: Can you articulate and have you articulated how you have considered the complexities in the issue?
· Breadth: Can you articulate/have you articulated other reasonable ways of looking at the issue?
· Logic: Is there a more logical interpretation than the one you have articulated?
· Significance: Have you focused on the most significant issue in dealing with/addressing this problem/issue?

• Remember to rotate to another partner for each Module until you have exchanged your responses with everyone in the class.
• Post your work in a timely manner. This is critical for the success of our strategy to continually improve.

You should read and re-read the criteria in this syllabus many times throughout the semester to ensure that you are clear about what you are striving to achieve. During the second week of class, you must submit a one-sentence statement indicating that you have received a copy of this syllabus, read it completely, and understand the goals, objectives, and all requirements of the course.

Development of Business Ethics Module in PowerPoint – 25%

Each student must select a business ethics topic develop a Power Point module that emphasizes not only the subject, but interaction among students and interactive activities where possible. The module should be posted to WebCT by the first day of the last week of regular class. The module should be critiqued and evaluated by all other members of the class. These critiques should be posted to WebCT by the last day of the final week of class; the student who originated the module may make any changes to the module and repost the module.

It is critical that the student cite all sources including photos. If the idea or photo is not your own (if the information did not come from your own scientific, legal, or management research), then you must give a reference citation at the exact place where the quote, paraphrasing, bulleted, photo, etc., is inserted in the
PowerPoint. If you did not take the photo or your research did not arrive at a conclusion or a statistic, for example, then you must provide the source. Also, give a list of sources/references at the end of the presentation.

If you can find videos or other information that makes the presentation “come alive,” please do so. There are excellent alternatives so explore them so that the module is both educational and fun.

**SELF EVALUATION - 5%**

One of the most powerful complex structures of self-assessment in thinking is that of completing a global analysis of the strengths and weaknesses of your overall performance in class. Therefore, you are required to argue for a grade you believe you deserve and “make a case” for receiving a particular grade using criteria provided in this syllabus and citing specific evidence from your work throughout the semester. Understand that if you argue for a higher grade than you deserve, your grade will be negatively affected. However, an accurate documentation of a lower grade will raise that grade. For example, if you do an excellent job documenting that you have done "D" work on this course, then you will receive an "A" on the self-assessment, thereby raising your final grade by a certain percentage.

What Each Grade Represents:

- **F** - The essence of F-level work is that the student demonstrated a pattern of non-critical thinking and/or failed to do the required work of the course. Typical characteristics of the work of a student who receives an F include: the student does not understand the basic nature of thinking in this subject area and does not display the related skills and abilities that are the heart of the course. The work at the end of the course is vague, imprecise, and unreasoned as it was in the beginning. There is little evidence that the student is genuinely engaged in the task of taking charge of her/his thinking. Many assignments appear to have been done pro forma with the student simply going through the motions without really putting any significant effort into thinking her or his way through them.

- **D** - The essence of D-Level work is that it demonstrates only a minimal level of understanding and skill in critical thinking in the course area. D work at the end of the course shows only occasional environmental thinking skills. Most assignments are poorly done. There is little evidence that the student is "reasoning through the assignment in a critical manner. D work rarely shows any effort to take charge of ideas, assumptions, inferences, and intellectual processes. In general, D-level thinking lacks discipline and clarity.

- **C** - The essence of C-level work is that it demonstrates more than a minimal level of skill, but it is also highly inconsistent with as many weaknesses as strengths. C-level work illustrates some but inconsistent achievement in grasping what scientific thinking is along with the development of modest critical thinking skills or ability. Though some assignments are reasonably well done, others are poorly done or at best are mediocre. On the whole, C-level work shows only modest and inconsistent reasoning and problem-solving skills.

- **B** - The essence of B-level work is that it demonstrates more strengths than weaknesses and is more consistent in high level performance than C-level work. It nevertheless has some distinctive weaknesses though no major ones. B-level work represents demonstrable achievement in grasping what scientific thinking is. B-level work at the end of the course is, on the whole, clear, precise, and well-reasoned, though with occasional lapses into weak reasoning. The work demonstrates a mind beginning to take charge of its own ideas, assumptions, inferences, and intellectual processes with the student often analyzing issues clearly and precisely.

- **A** - The essence of A-level work is excellence overall with no major weaknesses. A-level work demonstrates real achievement in grasping what scientific thinking is, along with the clear development of a range of specific skills and abilities. The work at the end of the course is, on the whole, clear, precise, and well-reasoned. The A-level students analyzes issues clearly and precisely, formulates information clearly, usually distinguishes the relevant from the irrelevant, recognizes key questionable assumption. A-level work displays excellent reasoning and
problem-solving skills and is consistently at a high level of intellectual excellence.

*The following must be submitted within the first week of class; it may be submitted via email.*

**VERIFICATION OF UNDERSTANDING OF COURSE REQUIREMENTS**

"This is to certify that I have read and completely understand the requirements for this course, MARS 620."

_____________ (STUDENT) ______________(DATE)

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