



Leadership in a Dynamic Environment

CAS NS 329 (3 credits)

Course Catalog Description:

Be an effective leader while leveraging the individual strengths of a team. Use leadership theory and case studies to understand how decisions affect outcomes. Participate as an active member of a ship's crew, progressively assuming full leadership roles.

Instructor(s): Sea Education Association Nautical Science Faculty

Location: SEA campus in Woods Hole, MA and at sea on SEA's sailing school vessel *Corwith Cramer*.

Prerequisites: Admission to SEA Semester. Sophomore standing or consent of instructor.

Course Philosophy and Approach:

Leadership in a Dynamic Environment (LDE) develops the ability to manage teams effectively amidst changing circumstances. With ship operations as a backdrop, students discuss literature and case studies to explore the foundations of effective leadership and support: task triage, decision-making, shared mental models, and appropriate executive styles. During Weeks 1-6 on shore in Woods Hole, students meet in a seminar format to discuss these principles in multiple applications, with a focus toward developing as effective members of a ship's crew. During Weeks 7 and 8, on shore at a field station in the U.S. Virgin Islands, students will discuss select readings about environmental leadership and work on their environmental leadership posters. The final four weeks of LDE takes place at sea aboard *SSV Corwith Cramer*, where students embark as active members of the crew. Students gain hands-on experience in executive and supporting roles, in an environment of true consequences. Aboard ship, a phased assumption of responsibility culminates in the role of Trainee Watch Officer (TWO), where routine operation of the vessel becomes the responsibility of the student team, under the oversight of senior staff.

This course consists of 6 lecture/discussion sessions (2.5 hours each), 1 field trip (3 hours), 1 practical exam (2 hours), 3 student-led presentation sessions (30 minutes each), and at least 50 hours of watch-standing (active learning/laboratory environment) and individual/team progress meetings across about 18 underway days at sea.

Learning Outcomes:

1. Understand keys to effective team leadership and membership, particularly environmental leadership.
2. Recognize the effectiveness of different executive styles.
3. Learn to develop action plans that are adaptable to circumstances.

Evaluation:

Case Analyses (2)	20%
Live Case Analyses (2)	20%
Leadership Spotlight Poster	20%
Skills Practical Exam	10%
Leadership Journal	10%
Staff Assessment	10%
Execution of Final Mission/Exercise	10%

Assignments:

Case Analyses (2): Case studies, with examples from maritime and non-maritime applications, will be used in the classroom to understand the successes and failures of leadership teams in changing circumstances. For this assignment, students will choose a case study, and write a short independent review developed on class content. These reviews will then serve as the foci for discussions in class ashore.

Live Case Analyses (2): Taking on leadership roles at sea will allow students to experience management at work in real time: planning, communication, flexibility, and assessment. The Live Case Analysis requires each student to prepare a written after-action review of an evolution that they have been part of, and to conduct a critique using background from the syllabus. A short presentation of findings will be made to the class. Two live case studies are assigned during the sea voyage, permitting different analytical perspectives.

Leadership Spotlight Poster: Students will examine one environmental leader, in depth, during a 20-30 minute poster presentation. After researching contemporary environmental leaders, students will work with their professor to select one environmental leader to profile in a poster session. The poster/discussion will examine the key attributes and leadership styles of this person, culminating in a recommendation for how best to lead environmental change.

Skills Practical Exam: This exam will take place at the end of the first training phase at sea. The exam is designed to establish proficiency in the baseline skills of the ship's departments (deck, laboratory, engineering, and accommodations) prior to the assumption of leadership roles.

Leadership Journal: The journal is a logbook for leadership experiences. It should begin with some thoughts prior to sailing about which elements of leadership theory might be most important at sea. During the voyage, students will act as team member, leader, trainee, and observer. Daily journal entries should be written to reflect on these experiences as they occur in context, and used as reference points in the development of personal leadership decisions.

Multi-Watch Mission/Exercise: Near the end of the training voyage, the class will be presented with an operational objective for the ship that requires coordination between watch teams over a 24-hour period. Students will need to choose an executive and several team leaders, and then to plan, conduct, and debrief the mission, all in coordination with the ship's chief instructional

officers. Each watch team will receive a shared grade for this assignment, based partly on execution, and partly on how effectively the team can analyze its performance in review.

Readings:

Abrashoff, M.D. *It's your ship: Management Techniques From the Best Damn ship in the Navy*. Warner, 2002.

Davis, J. "High Tech Cowboys of the Deep Seas: The Race to Save the Cougar Ace". *Wired*, February, 2008.

Dupree, M. *Leadership Jazz: The Essential Elements of a Great Leader*. Doubleday, 1992.

Gladwell, M. *Outliers: The Story of Success*. Little, Brown, 2008.

Heifetz, R. and L. Donald. "The Work of Leadership". *The Harvard Business Review*, Dec, 2001.

Krakauer, J. "Into Thin Air" *Outside*, September, 1996.

Le, B. *The Junior Watch Officer's Sheet Anchor*. The Sea Education Association, 2003

Parrot, D. *Bridge Resource Management for Small Ships*. International Marine, 2011.

Perkins, D.N.T. *Leading at the Edge*. Amacom, 2012.

Sitkin, S. and J. Brittain. *Carter Racing*. Delta Leadership Publications, 2001.

Sitkin, S. and A. Lind. "The Six Domains of Leadership" *Leader to Leader*, Fall 2006.

The Sea Education Association: Manual for Shipboard Operations.

The National Transportation Safety Board (NTSB): Case studies of marine casualties.

Expectations and Requirements:

- Punctual attendance is required at every class meeting.
- Active participation in class discussion is expected.
- Late assignment submissions are not accepted.
- The policy on academic accuracy, quoted below, will be strictly followed in this class.

The papers that you submit in this course are expected to be **your original work**. You must take care to distinguish your own ideas and knowledge from wording or substantive information that you derive from one of your sources. The term "sources" includes not only published primary and secondary material, but also information and opinions gained directly from other people and text that you cut and paste from any site on the Internet.

The responsibility for learning the proper forms of citation lies with you. Quotations must be placed properly within quotation marks and must be cited fully. In addition, all paraphrased material must be acknowledged completely. Whenever ideas or facts are derived from your reading and research, the sources must be indicated. (*Harvard Handbook for Students*, 305)

- Considerations for use of internet sources:
As you browse websites, assess their usefulness very critically. Who posted the information and why? Can you trust them to be correct? Authoritative? Unbiased? (It's okay to use a biased source as long as you incorporate it knowingly and transparently into your own work.) Keep track of good sources that might be useful for subsequent assignments, and

annotate in your bibliography any sites you cite. Your annotation should include the name of the author or organization originating any material that you reference. If you can't identify the source, don't use it!

Course Calendar:

Topic	Readings/Assignments Due
Week 1 (2.5 hours) – on shore at SEA campus in Woods Hole	
Introduction to <i>Caribbean Reef Expedition</i> program and <i>Leadership in a Dynamic Environment (LDE)</i> ; Overview of course goals & assignments The Principles of Leadership: <ul style="list-style-type: none"> • Academic Definitions of Leadership • The Case Study as an Analytical Tool 	Readings: Heifetz and Donald (2001) Krakauer (1996) Sitkin and Lind (2006)
Week 2 (2.5 hours) – on shore at SEA campus in Woods Hole	
Recognizing Dynamic Environments: <ul style="list-style-type: none"> • Team Assets and Limitations • Leadership systems and Settings • Comparisons to Conventional Settings 	Readings: Davis (2008) Perkins (2012) <i>Environmental leader for research poster selected</i>
Week 3 (2.5 hours) – on shore at SEA campus in Woods Hole	
Leadership Styles and their Impact <ul style="list-style-type: none"> • Mr. Rogers vs. Captain Ahab • Matching Style to Setting • Team Personalities 	Readings: Abrashoff (2002) Dupree (1992) Perkins (2012) <i>First Case Analysis due</i>
Week 4 (2.5 hours) – on shore at SEA campus in Woods Hole	
The Values and Limits of Plans <ul style="list-style-type: none"> • Plans and Team Dynamic • The Shared Mental Model • Making and Revising Plans 	Readings: Sitkin and Brittain (2001) Parrot (2011) Gladwell (2008)
Week 5 (5.5 hours) – on shore at SEA campus in Woods Hole	
Maritime Applications of Leadership <ul style="list-style-type: none"> • Conventional Leadership Structures • Bridge Resource Management • Error Chains and Accident Prevention Field Trip: Bridge Simulator, MA Maritime Academy	Readings: Parrot (2011) NTSB Case Studies



Week 6 (2.5 hours) – on shore at SEA campus in Woods Hole	
<p>Preparing for Sea</p> <ul style="list-style-type: none"> • The Trainee Watch Officer System • Leadership Principles for Watch 	<p>Readings: SEA Operations Manual JWO Sheet Anchor</p> <p>Second Case Analysis due</p> <p>First Leadership Journal Entry due</p>
Weeks 7 and 8 (6 hours) – at field station in the U.S. Virgin Islands	
<p>Discussion of environmental leadership readings</p>	<p>Environmental leadership readings TBD</p> <p>Summary of Leadership Poster Due</p>
Weeks 9 and 10 (29 hours) – at sea	
<p>Training Phase I: Apprenticeship</p> <ul style="list-style-type: none"> • Shipboard Orientation • Safety and Emergency Management • The Watch: Shipboard Leadership Structures • Principles of Communication • Departmental Training: <ul style="list-style-type: none"> - Seamanship and Sail handling - Scientific Sampling - Navigation - Food Service and Sanitation • Advanced Training in Practical Ship Evolutions • Task Management and Delegation • Shadowing Experienced Leaders <p>Live Case Analysis Presentation I</p>	<p>Daily Leadership Journal Entries</p> <p>Practical Skills Exam</p>
Weeks 11 and 12 (27 hours) – at sea	
<p>Training Phase II: The Trainee Watch Officer (TWO)</p> <ul style="list-style-type: none"> • Daily Post-Watch Progress Meetings • Weekly Individual Progress Meetings • First TWO Watch • Second TWO Watch • Daily Post-Watch Progress Meetings • Post-TWO Watch Debriefing • End of Cruise Debrief with Captain and Chief Scientist <p>Live Case Analysis Presentation II</p> <p>Multi-Watch Mission/Exercise</p>	<p>Daily Leadership Journal Entries</p> <p>Written Assessment by Staff</p> <p>Leadership Poster Session</p>