

EGR 501 Engineering Leadership and Strategic Change

Spring 2024 – Syllabus

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COURSE OVERVIEW

Prerequisites:

An engineering, technical or scientific undergraduate degree is required. Prior job experience is helpful but not required.

You will be provided access to Moodle and Zoom/Google Meet; you will need a computer with a webcam/microphone.

Course Objectives:

This course is designed to prepare students to lead, manage and direct groups in STEM-related fields. Students will develop their leadership competencies leveraging foundational frameworks for leadership and strategic change as they are applied to projects and programs in an engineering or scientific work environment.

Upon completion of this course, students will be able to:

1. Identify and distinguish between different leadership typologies
2. Apply the requisite skills to become effective leaders and agents of change in engineering organizations
3. Distinguish between the technical and adaptive challenges of engineering leadership
4. Describe the conceptual frameworks for effective organizational change
5. Apply the principles of system thinking to engineering organizations
6. Analyze real-world leadership challenges in engineering organizations (business cases)
7. Create effective virtual and global engineering teams

Course Details:

This class is offered in both in-person and virtual formats based upon your enrollment selection. Even though the course has an online component, our schedule corresponds with the on-campus calendar and follows an organizational pattern very much like an on-campus course that requires you to be prepared twice weekly. Students in the SEATED version of the class will be expected to interact with your classmates and discuss issues and case studies real-time as this course meets **synchronously**.

Class will be on Monday and Wednesday of each week. Students will be expected to complete required readings and online activities, as described on the course Moodle site. Students will often work in teams to complete some assigned projects and will be expected to schedule periodic virtual meetings outside of class in order to complete these tasks.

Format:

A course site is available using Moodle platform. You must log in to the course site using your [Unity ID](#) and password, and from there you will access PowerPoint[®] presentations, recorded weekly lectures, links to required readings and course materials, and discussion forums. Students will cover the learning material independently according to the course schedule.

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If you have not already done so, access your NC State University Unity computer account and be familiar with your login ID and Password. This information is available at: [Unity ID](#)

Through the use of the Google Meet or Zoom, student groups can meet virtually to plan and present assigned group projects. Both platforms support VoIP real-time voice communication and the exchange of data and multimedia content in addition to offering a means of application and screen sharing. Detailed instructions regarding hardware requirements and optimizing your computer to function with tools are available from NCSU Help Desk.

Instructor Office Hours:

I am available for virtual office hours in person or via Zoom on Monday and Wednesday evenings 7:00 - 9:00 p.m. EST. However, I encourage you to email me at any time with your questions or concerns. You can usually expect me to respond to an email within 24 hours.

Textbooks & Resources:

1. *Leading Change* (2012) - John P. Kotter, Harvard Business School Press, ISBN 978-1-4221-8643-5. \$28.13 from Amazon.com
2. *Leadership by Engineers and Scientists: Professional Skills needed to Succeed in a Changing World* (2018). ISBN: 978-111-943-6553. \$67.84 from Amazon.com
3. *StrengthsFinder 2.0* (2007) – Tom Rath, Gallup, ISBN 978-1595620156. \$17.30 from Amazon.com (MUST BE PURCHASED NEW WITH CODE FOR ONLINE ASSESSMENT).
4. HBR Course Pack (\$52.45)
5. **HBR Simulations (~\$30 per TEAM)**

Course Communications:

The communications components of the course include e-mail, Moodle discussion forums, video conferencing applications (Google Meet and/or Zoom).

Any Moodle discussion forums will take place *asynchronously* in the course website, meaning that the class discussion occurs over an extended period of time rather than in "real time". You do not have to be online at the same time as other students or the instructor in order to participate in a forum discussion. The discussion forums are public - that is, they can be accessed by anyone in the course. In these public spaces, follow the normal courtesies of public communications. Any private communications between individuals should be completed using email or telephone.

Instructor's Preferred mode of Communication:

The best way to reach me is via email (ktreyno2@ncsu.edu). I will attempt to respond to all email within 24 hours. If you would like to have a telephone conversation with me, please check my Google Calendar or contact my administrative assistant, Mrs. Danita Taylor (detaylo2@ncsu.edu) via e-mail to set up an appointment.

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COURSE REQUIREMENTS AND EXPECTATIONS

Class Schedule and Required Readings:
Mondays/Wednesdays – 6PM – 7:15PM
4134 Fitts-Woolard Hall

See the Course Schedule and Readings List. Dates and readings are subject to change; advance notice will be given of any changes in assigned readings.

Your success in the class depends on a mix of learning from others and developing ideas and concepts of your own.

The course requires learning from assigned readings, videos, group work, and team term project efforts. **Students should always complete reading assignments (available on the course Moodle website) *before* viewing the PowerPoint presentations and posted videos.**

Because there are many readings, videos, etc., you are strongly advised to take notes so that you can make reference to specific content when doing required assignments.

When teams are assigned group work such as case studies or discussion questions, the teams will meet at a day and time agreed to by the team. Skype and Collaborate can be used for team meetings; they are also available for discussing team term projects. Google Apps is also available for student collaboration.

TECHNICAL INFORMATION

Required Hardware and Software:

This course has been designed with minimal hardware and software requirements. With respect to your home computer system, it should meet or (preferably) exceed [the minimum recommendations](#) made by NCSU Computing Services.

There are several group activities that will require students to use web conferencing tools such as Blackboard Collaborate or Skype. A microphone/headset (as opposed to built-in computer speakers) produce best results for audio, while built-in laptop cameras will typically be satisfactory for video.

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GRADING and EVALUATION

Student Conduct:

Each assignment must be completed without the assistance of any other person, unless assigned as group work. All students are expected to practice academic integrity throughout the course. Any evidence of academic dishonesty (cheating, plagiarism, etc.) will be pursued diligently.

Review the NCSU [Code of Student Conduct](#) and adhere to the code at all times.

Attendance:

This is a discussion-based course. If you are in the in-person lecture then the expectation is that you are present for class regularly. Starting with your **third** absence your grade will be reduced by ½ letter grade. Students in the in-person lecture will NOT be provided with access to recordings unless your absence is approved through the Absence Verification Process.

Incomplete and Late Assignments:

It is the students' responsibility to meet all deadlines in the class unless they have a university recognized excuse (religious holiday, death in family, medically excused absence due to illness, inclement weather.). Please note that stated times for classes and assignments are for the U.S. Eastern Time zone, and if you are traveling, you may need to account for time differences.

Students should be familiar with the [university attendance regulations](#), which cover excused and unexcused absences and scheduling makeup work. In case of business travel, students should work with the instructor *well in advance* to agree how assignment deadlines can be met; emergencies will be handled on a case by case basis.

Instructions for Submitting Assignments:

Student assignments will be submitted in our Moodle course site drop-boxes. Please note that NC State's *limit for the file size of an e-mail attachment is 15 megabytes*. This should not present a problem in this course, but you should be aware of the limitation.

Please save your written assignments in a file format readable by Microsoft Word for Windows. Also, please follow this naming convention: *EGR 501 - Student Name(s)-Assignment Title.doc or EM 589 - Student Name(s)-Assignment Title.doc*

All assignments should be formatted using APA 7th Edition as a guide. The abbreviated details can be found here:

https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/apa_changes_7th_edition.html

Grading:

A) Individual Written Assignments/Book Chapter Review (4-6 pages)	10%
B) Journal Reviews/Reports (6-8 pages)	20%
C) Teamwork Evaluations/Forum Posts	10%
D) Case Studies (10-12 pages)	40%
E) Simulations	20%

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Forum Posts

Forum Posts should be approximately *300 words in length*. They should cover the “Top Five” things that you derived from the assignment and how they are relevant to the overall learning objectives of the class. You should reply to **at least 1** of the other postings in the forum with insights that should be no more than *150 words in length*. Forum posts are to encourage you to collectively navigate the topic and bring out the most relevant points.

Simulations

Simulation grades are based on a percentage of the highest scoring group.

Scale for Grades:

This course uses Standard NCSU Letter Grading. This course must be taken for a grade.

A+	97 to 100%	A	93 to 96%	A-	90 to 92%
B+	87 to 89%	B	83 to 86%	B-	80 to 82%
C+	77 to 79%	C	73 to 76%	C-	70 to 72%
D+	67 to 69%	D	63 to 66%	D-	60 to 62%
F	<60%				

The +/- grading is the University’s official grading scale and will be used in this class.

POLICIES

Academic Integrity:

The [NCSU Code of Student Conduct](#) covers all work done in this course. Any suspected violations will be promptly reported. Academic dishonesty will result in an automatic failing grade for the course.

Course Evaluations:

A formal evaluation is conducted by the University toward the end of the semester and the goal is to achieve 100% class participation in this survey. Online class evaluations will be available for students to complete during the last two weeks of class. Students will receive an email message directing them to a website where they can login using their Unity ID and complete evaluations. All evaluations are confidential; instructors will never know how any one student responded to any question, and students will never know the ratings for any particular instructor.

Information about Class Eval:

<https://oirp.ncsu.edu/classeval/>

Student help desk: classeval@ncsu.edu

Unity ID/Password and Email Account:

If you have not done so, access your NC State University Unity computer account and be familiar with your login ID and Password. Information is available at:

<https://oit.ncsu.edu/my-it/unity-credentials/#unityid>. Your Unity ID and Password are required to access lecture videos and for many other online functions.

All student email accounts at NC State are Google mail. Students should log into <http://gmail.ncsu.edu> and follow directions there. Please be aware that ALL e-mail correspondence from the university and/or Engineering Online regarding your classes, program information, etc. will be sent to your NCSU e-mail account.

However, if you already have an established e-mail account, there is currently an option to have mail from your university e-mail account forwarded into a personal account. Follow instructions within

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Gmail to establish a forwarding address –

<https://oit.ncsu.edu/my-it/email-calendaring/email-forwarding/>. It is essential for you to be sure you are receiving all messages sent to your ncsu.edu account.

Students with Disabilities:

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students, Holmes Hall Suite 304, 2751 Cates Avenue, Campus Box 7509, Raleigh, NC 27695-7509 ; 919-515-7653. <https://dro.dasa.ncsu.edu/enrolled-students/>

Copyrighted Materials:

This course web site contains copyrighted materials and was developed for instructional purposes to be used by graduate students in EGR 501. Students currently registered in this course are permitted to print or make copies of parts of this site for their own personal use in conjunction with completing the course. Text, audio files, images or design of this web site may not otherwise be distributed or modified in any manner without the prior written permission of the instructor.

This site may also contain material by various authors that is covered under additional copyright protection. In all cases this material will be clearly cited and may not be further disseminated without the express and written permission of the legal copyright holder. The user must assume full responsibility for any use of the materials, including but not limited to, infringement of copyright and publication rights of reproduced materials.

Statement on Diversity, Equity & Inclusion

The Edward P. Fitts Department of Industrial & Systems Engineering seeks to create a learning environment that supports a diversity of thoughts, perspectives and experiences while honoring the identities (including but not limited to race, gender, class, sexuality, religion, ability, etc.) of our students. To do so, we must acknowledge the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.

While we fully support and encourage open expression as a part of the process of academic discourse, we should engage one another with civility, sensitivity and cordiality. In affirming our common humanity, we reject all forms of prejudice, discrimination and bias. The process of learning often requires difficult and uncomfortable conversations that challenge our beliefs or the status quo. These new perspectives deepen our understanding, strengthen our community and propel our innovation. Only through thoughtful engagement can we create an environment of inclusive excellence for all. As faculty, staff and students we will navigate these challenges through dialogue, education, training, and development while adhering to our shared principles and community values.

Supporting Fellow Students in Distress

- As a university community we share a personal responsibility to express concern for one another and to ensure that this classroom and the campus as a whole remains a safe environment for learning. Occasionally, you may come across a fellow classmate whose personal behavior concerns or worries you. When this is the case, I would encourage you to report this behavior to the NC State Students of Concern website: <https://studentsofconcern.dasa.ncsu.edu/>. Although you can report anonymously, it is preferred that you share your contact information so they can follow-up with you personally.
- As a student you may experience a range of personal issues that can impede learning, such as strained relationships, increased anxiety, alcohol/drug concerns, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic

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performance and may impact your

- ability to participate in daily activities. It is very important that you have a support system and that you ask for help when you are struggling. The Counseling Center at NC State offers confidential mental health services for full time NC State students, including same-day emergency services. Please visit <https://counseling.dasa.ncsu.edu/> to get connected.

Health and Well-Being Resources

These are difficult times, and academic and personal stress are natural results. Everyone is encouraged to [take care of themselves](#) and their peers. If you need additional support, there are many resources on campus to help you:

- Counseling Center ([NCSU Counseling Center](#))
- Health Center ([Health Services | Student](#))
- If the personal behavior of a classmate concerns or worries you, either for the classmate's well-being or yours, we encourage you to report this behavior to the NC State CARES team: ([Share a Concern](#)).
- If you or someone you know are experiencing food, housing or financial insecurity, please see the Pack Essentials Program ([Pack Essentials](#)).

Other Important Resources

- **Keep Learning:** [Keep Learning](#)
- **Protect the Pack FAQs:** [Frequently Asked Questions | Protect the Pack](#)
- **NC State Protect the Pack Resources for Students:** [Resources for Students | Protect the Pack](#)
- **NC State Keep Learning, tips for students opting to take courses remotely:** [Keep Learning Tips for Remote Learning](#)
- **Introduction to Zoom for students:** <https://youtu.be/5LbPzzPbYEW>
- **Learning with Moodle, a student's guide to using Moodle:** <https://moodle-projects.wolfware.ncsu.edu/course/view.php?id=226>
- **NC State Libraries** [Technology Lending Program](#)