ISE-315: Engineering Project Management

Units: 4

Term—Day—Time:

Spring 2025

Days: Mondays and Wednesdays

Time: 2:00 pm to 3:50 pm

Location: GFS 207 (Grace Ford Salvatori Hall)

Instructor: Neil Siegel, Ph.D.

The IBM Professor of Engineering Management, and

Professor of Practice with Distinction, Daniel Epstein Department of Industrial and Systems Engineering, and

Professor of Practice, Department of Computer Science

USC Viterbi School of Engineering

Office: GER-202C

Office Hours: TBD

(additional office hours are available by appointment – send me an email)

Contact Info: nsiegel@usc.edu or siegel.neil@gmail.com; 213-740-0263

Teaching Assistants / Course Producers:

TBD

TBD email and TBD phone

IT Help (for the Viterbi Desktop software, and the Microsoft Project software)**:** John Ng

Hours of Service: Monday-Friday, 9:00 am to 4:00 pm

Contact Info: johnng@usc.edu

Course Description
Managing a project intended to create an engineered system. Methods, processes, tools. Lessons-learned from actual practice. Case studies from real projects. Presentations by student teams.

This course is designed for engineering undergraduate students interested in learning how to manage engineering projects.

Society today depends on many engineered systems – complex ensembles of capability, interconnected so as to provide some benefit not achievable by the individual components. Examples include air traffic control and scheduling, medical systems that optimize care and cost, the power grid that integrates many sources of energy to provide continuous electric service (even in the presence of disruptions and failures of components), systems that coordinate the supply chain of businesses so as to ensure continuous availability of desired products while also reducing waste, and so forth. It is not an exaggeration to say that society as we know and expect it could not exist without such systems, which provide safety, reliability, and affordability for many critical products and services.

Such systems are among the most complex artifacts ever created by humans. And each such project needs a ***project manager***, someone who will lead the project to a successful conclusion.

Of course, there are also many smaller projects, of varying sizes and degrees of complexity. They all need project managers, too.

This course provides an introduction to the subject of learning to be such a project manager. Drawing upon the experiences of the instructor as a person – who actually was such an engineering project manager in private industry (for projects large and small) before joining the USC engineering faculty – he will share with you a set of guidelines, objectives, techniques, practices, and tools that he believes will help the students understand how to perform the role of an engineering project manager.

This course, however, is ***not*** intended to prepare the student for any particular project management certification exam.

Learning Objectives
By the end of the course, students will be able to :

- Articulate the motivation for engineering projects, and the motivation for wanting to learn to become the manager of an engineering project
- Explain the engineering project management value-proposition, be familiar with the difference between projects and other activities, understand the special needs of engineering projects (as contrasted with other types of projects and their management), and understand the contribution of engineering project management to society
- Articulate the complete *system life-cycle* (requirements, design, implementation, test, deployment, operations and maintenance, disposal) used in developing engineering projects, and also learned about key leverage points, and key lessons-learned from actual large projects
- Analyze and explain the major elements of the *engineering project management process*, based on the textbook, the lectures, and a set of examples (case-studies) drawn from real projects

- Identify and analyze the customers and stakeholders for an engineering project. Can explain two key representations of these data: the Concept of Operations document, and the Social Architecture document.
- Solve engineering project management problems, using the methodologies, tools, representations, and analysis methods used in engineering project management, and (through the case studies from actual projects that are presented in the class) how engineering managers tackle and solve problems. These case studies cover both the technical and social aspects of being an effective engineering project manager, including dealing with our non-technical stake-holders (which might include those who make procurement decisions, those who make funding decisions, those who make applicable laws and regulations, our customers and users, and [increasingly] the general public and the media), as well as our fellow engineers and scientists.
- Apply the methods of risk / opportunity management.
- Articulate a set of basic facts and methods about engineering economics, and how those economic factors are used in project management, and what your supervisor and customer will expect your project to do in this regard. These include creation of a work-breakdown structure, schedule estimation, cost estimation, variance analysis, schedule and cost monitoring and updating, resource management, financial measures of interest to your company, and so forth.
- Articulate a set of "social factors" that relate specifically to engineering project management: motivating employees, aligning employees, communicating to your employees and to your stakeholders, recognizing and resolving conflicts, and so forth.
- Explain that software is a major component of most modern engineering projects, and a disproportionate contributor to project risk. Have learned a set of methods for dealing with engineering projects with large amounts of software.
- Explain that most engineering projects arise as a result of competitive bidding, and can articulate a set of techniques for how to prepare effective bids.
- Apply a set of procedures to start-up and to end an engineering project, and can explain the need to account for the time and cost of these activities when preparing schedule and cost estimates.
- Articulate a set of methods and measures for measuring the quality factors relating to your engineering project.
- Articulate a definition of ethics for the specific situation of engineering projects, and a set of key factors that can drive engineering projects into situations of ethical lapse. Be able to explain a set of case studies in ethics relating to engineering project management.
- Use a computer-based project scheduling tool (Microsoft Project) in order to create automated representations of a project activity network.
- Apply all of the above, through their participation in a semester-long team assignment, including the creation of a written report, and also a team presentation (in which every member of team participates and presents).

Prerequisite(s): ISE-225
Co-Requisite(s): None
Concurrent Enrollment: None

Recommended Preparation:

- Competency in undergraduate level mathematics

- Capable of preparing professional papers and presentations in the English language using proper citations
- Ability to produce documents in Microsoft Word, PowerPoint, and Excel

Course Notes

The course may be taken ***only*** for a conventional letter grade; taking the course on a pass/fail basis is not allowed by the instructor.

Lecture, 110 minutes, twice per week. Most of the time, the 2nd class session each week will be a facilitated lab session.

Outside study and homework includes reading assignments, short written summaries of those readings, individual study to master the lecture materials, completion of projects started during the weekly facilitated lab sessions, including a semester-long team assignment.

The professor will hold scheduled office hours for students of this class, and will also offer specifically-scheduled one-on-one or group meetings, and will also be available for consultation via email and telephone.

Lecture slides will be posted on the USC Brightspace learning management system.

Technological Proficiency and Hardware/Software Required

The course lectures will be available in Microsoft PowerPoint (or occasionally Adobe Acrobat Reader) format. Registered USC students can obtain copies of Microsoft PowerPoint at:

http://itservices.usc.edu/officestudents/

Adobe Acrobat Reader is available for free from the Adobe web site.

Some of the in-class work and some of the homework will be done in Microsoft ® Project. Copies of Microsoft ® Project are available free of charge to current USC students and faculty, or on the Viterbi virtual desktop. Microsoft ® Project only operates on Windows computers, but the Viterbi virtual desktop operates on both Windows and Apple computers, and using the virtual desktop allows Apple computers users to have access to Microsoft ® Project.

You may also download Microsoft ® Visio from the USC software repository (or operate it from the Viterbi virtual desktop). Visio can be used to draw a picture of the Work Breakdown Structure in a hierarchical format, and other similar useful tasks. Visio is not, however, required for the class or the homework.

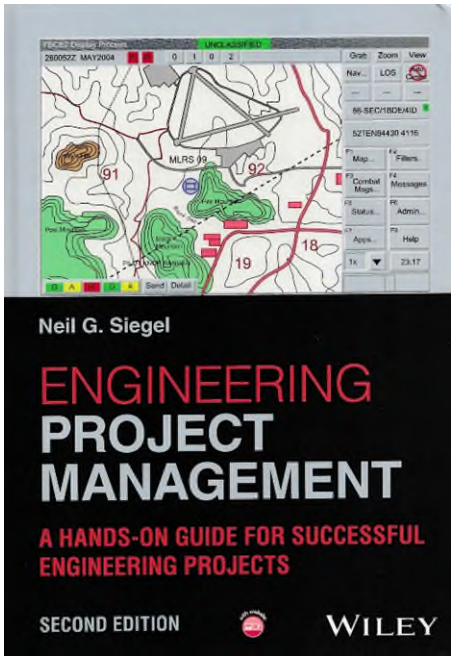
As noted above, Microsoft ® Project and Visio are also available to students registered in this class via the Viterbi "MyDesktop". A version of the Viterbi MyDesktop is available for both Windows and Apple MacIntosh computers, and thereby provides a way to run both Microsoft ® Project and Visio on an Apple computer. Instructions for gaining access to MyDesktop will be provided via Brightspace prior to the start of the class sessions that require use of the Microsoft ® Project software.

We will also be using add-on macros for Microsoft ® Project. Instructions for installing these add-on macros into Microsoft ® Project will also be provided via Brightspace.

We will be ***using Microsoft ® Project starting during the 7th week of class***, so please get this software installed onto your laptop computer, and bring that computer with you to class that week, and on other occasions as noted by the instructor.

Required textbooks
There is a single required textbook for this course:

- "Engineering Project Management: A Hands-On Guide for Successful Engineering Projects", 2nd Edition, Neil Siegel, Wiley, ISBN-13: 978-1394242986. This text is available via the USC bookstore, and also via on-line sources such as Amazon.com (https://www.amazon.com/Engineering-Project-Management-Hands-Successful-dp-1394242980/dp/1394242980/ref=dp_ob_title_bk). Note that the required textbook is the ***2nd edition***; use of the 1st edition is not suitable, as there is a lot of material added to the 2nd edition that is covered in the course. The cover of the 2nd edition looks like this:



Any additional reference materials needed will be provided via Brightspace by the professor.

Description and Assessment of Assignments
Homework will be assigned during the course, and will figure as a part of your grade (see the section below, "Grading Breakdown"). Six of the homework assignments consist of written summaries of your readings from the textbook (10 points each; 60 points total). Instructions regarding this portion of the homework will be contained in each week's class lecture slides, and is summarized in the matrix below ("Course Schedule: A weekly breakdown"), which shows both dates of assignments and assignment due-dates.

During either one or two of the facilitated lab sessions, there will be work assigned to you involving the use of the Microsoft ® Project software (50 points), some of which will be accomplished during these lab sessions; however, you will likely also need to spend some time outside of the classroom hours in order to finish this assignments. Your products from this assignment will be counted towards your grade.

There will also be a ***team project***; every student will be assigned to a team. We will work during some of the facilitated lab sessions on elements of the team project, which will allow the professor to ensure that everyone understands each aspect of the team assignment and is keeping up with the flow of work, but you should expect that you will need to work with your team outside of classroom hours in order to complete the team project.

Elements of the team assignment (290 points) are indicated in the matrix, below, and summarized here:

- Introduction to your project, including a description of the problem, and your proposed solution
- The customer's coordinate system of value. Operational Performance Metrics and Technical Performance Metrics.
- Proposals, proposal-creation guidance (such as the "Heilmeier questions"), win themes
- Risk management
- Project start-up
- The social aspects of the engineering project management role
- Summary, conclusions, and recommendations

A more detailed description of the team project paper and presentation charts will be provided via Brightspace, during weeks 5 or 6 of the course.

The specific homework assignments, their due-dates, and their point-value towards your grade for this course are summarized in the matrix provided in the section "Course Schedule: A Weekly Breakdown", below. All assignments should be turned in through Brightspace. Only one person from each team should turn in the team assignment; each team will need to coordinate in advance with the TA regarding the name of that person.

Examinations

There will be two written examinations as a part of the course:

> Mid-term examination – during the 1st class session for week 9 (300 points)
>
> Final examination – during finals week; you will be notified of the specific date, time, and location well in advance of the examination (300 points).

The two written examinations will only cover materials presented in the *course lecture slides*. The course lecture slides indicate which materials that *might* be included on the exams by a large red asterisk ("*****"). If this asterisk appears on the slide's title line, everything on that slide might be included on one of the exams. If this asterisk appears next to an item on that slide, that item ***and all of its indented sub-items*** might be included on one of the exams.

Two additional PowerPoint files will be made available by the professor:

> One will summarize the key aspects of the lectures up until the mid-term examination; this file will be made available about a week before the mid-term examination.
>
> The second will summarize key aspects of the lectures for the entire course; this file will be made available about two weeks before the final examination.

The date for the final examination is prescribed by the University, and cannot be changed by the professor; the final examination can be offered on another date only under the most extraordinary circumstances (I once had a student who was getting married that day – we did arrange for that student to take the test the day before!). The following describes the written examinations:

- The questions will all be "essay" questions, e.g., the professor will describe a situation, and ask you to discuss it in light of what you have learned from the class. Expect that all the questions will draw *only* from material presented in the course lecture slides. Of course, this material is also discussed in the textbook, but *every* item on both exams will be presented on one of the course lecture slides.
- ***VERY IMPORTANT: You may bring 1 letter-sized piece of paper*** (8½" x 11" – with text &/or drawings on both sides – hand-written or typed, at your discretion) ***of notes to use during each examination.***
- You may use a stand-alone calculator (e.g., no memory or internet connectivity) during the examinations. The mid-term examination may require some numeric calculations.
- Bring pencils, erasers, and a pencil sharpener to the examinations!
- Bring some scratch paper, too.
- No computers, phones, iPads / tablets, Dick-Tracy wrist watches, etc. – nothing with computing, storage, or internet connectivity will be allowed during the examinations.

Grading Breakdown
Your grade will be based on a combination of homework and examination scores:

- Homework assignments – 40%
- Mid-term examination – 30%
- Final examination – 30%

The grading scale for the course is as follows:

A 941-1,000	A- 900-940	B+ 880-899	B 841-879	B- 800-840	C+ 766-799
C 733-765	C- 700-732	D+ 666-699	D 633-665	D- 600-632	F Below 600

The total for all point-scoring opportunities is 1,000; the mid-term examination is 300 points (e.g., 30% of your grade); final examination is 300 points (e.g., 30% of your grade); and the homework assignments (including the presentations by the student teams) are 400 points (e.g., 40% of your grade). Your grade will be based on your total point score, using the table above. During the conduct of the course, all of your examination and homework scores will be posted on Brightspace (usually within a couple of days), to which you can gain access anytime by logging in with your USC login information.

Course Schedule: A Weekly Breakdown

Date of the 1st class session that week	Lectures (Mondays)	Lectures / facilitated lab work (Wednesdays)	Homework assigned	Homework due (*before* the start of the Monday class session)
Week 1 (1-13-2025)	• Motivation • Introduction to the topic • Course overview, expectations, texts	• Exercises about motivations for engineering projects, and their contribution to the world	• Read chapter 1 of ***Engineering Project Management*** (hereafter, "EPM"); write a 1-page summary of your key learnings	• (no homework due this week)
Week 2 (1-20-2025)	• **MLK holiday – no class today**	• The project development cycle – how do engineering projects get built? (part 1)	• Read chapter 2 of EPM; write a 1-page summary of your key learnings	• **HW 1**: 1-page written summary of key points learned from EPM chapter 1 (10 points) • Short bio (include this in the same file as the 1-page written summary of chapter 1 of EPM)
Week 3 (1-27-2025)	• The project development cycle – how do engineering projects get built? (part 1)	• The project development cycle – how do engineering projects get built? (parts 3 and 4)	• Read chapter 3 of EPM; write a 1-page summary of your key learnings	• **HW 2**: 1-page written summary of key points learned from EPM chapter 2 (10 points)
Week 4 (2-3-2025)	• Your users and your other stakeholders	• Team exercise: the customer's coordinate system of value, OPMs, TPMs	• Read chapter 4 of EPM; no written summary is required	• **HW 3**: 1-page written summary of key points learned from chapter 3 of EPM (10 points)
Week 5 (2-10-2025)	• Where do engineering projects come from? Creating winning proposals.	• Team exercise: proposals, the Heilmeier questions, win themes	• Read chapter 5 of EPM; no written summary is required	• (no homework due this week)

Date of the 1st class session that week	Lectures (Mondays)	Lectures / facilitated lab work (Wednesdays)	Homework assigned	Homework due (*before* the start of the Monday class session)
Week 6 (2-17-2025)	• **President's day holiday – no class today**	• Work breakdown structure, organizing a project, planning • Team exercise: work-breakdown structure	• Read chapter 6 of EPM; write a 1-page summary of your key learnings	• (no homework due this week)
Week 7 (2-24-2025)	• The activity network: creating credible predictions for schedule and cost. • Using statistics to reach valid conclusions • Resource leveling.	• Using statistics to reach valid conclusions Introduction to the concept of an *activity network* as the primary schedule-management artifact •	• Read chapter 7 of EPM; no written summary is required	• **HW 4**: 1-page written summary of key points learned from chapter 6 of EPM (10 points)
Week 8 (3-3-2025)	• Review of the course-to-date	• Risk and opportunity management **(this material will *not* be covered on the mid-term examination)**	• Read chapter 8 of EPM; no written summary is required	• (no homework due this week)

Date of the 1st class session that week	Lectures (Mondays)	Lectures / facilitated lab work (Wednesdays)	Homework assigned	Homework due (*before* the start of the Monday class session)
Week 9 (3-10-2025)	• **Mid-term examination** (will cover lectures 1 through 8, inclusive)	• Team exercise: risk management	• Read chapter 9 of EPM; write a 1-page summary of your key learnings • Also read chapters 1 and 2 from the textbook on The Economics of Engineering; write a second 1-page summary of your key learnings • Include both pages in HW 5.	• (no homework due this week)
3-17-2025	• **Spring break – no class today**	• **Spring break – no class today**	•	•
Week 10 (3-24-2025)	• Engineering economics, part I: (a) Assessing earned value. (b) 3 basic concepts of economics	• Individual homework: earned value and variance calculations (will become a part of HW MSP)	• Read chapter 10 of EPM; no written summary is required	• **HW 5**: 1-page written summary of key points learned from chapter 9 of EPM, and from chapters 1 and 2 of The Economics of Engineering (10 points)
Week 11 (3-31-2025)	• The monthly management cycle	• Individual homework: individual exercises with the Microsoft © Project software: single-point estimates, 3-point estimates (will become a part of HW MSP)	• Read chapter 11 of EPM; no written summary is required	• (no homework due this week)

Date of the 1st class session that week	Lectures (Mondays)	Lectures / facilitated lab work (Wednesdays)	Homework assigned	Homework due (*before* the start of the Monday class session)
Week 12 (4-7-2025)	• Special topics: (a) launching your project (b) projects with lots of software (c) agile projects (d) ending your engineering project	• Team exercise: launching your project	• Read chapter 12 of EPM; no written summary is required • Read chapters 3 through 7 of The Economics of Engineering textbook (you have 2 weeks to do this); write a ***2-page*** summary of your learnings	• **HW MSP**: Your outputs from the Microsoft Project session will be turned in as homework, together with your answers to the earned-value and variance calculation assignment (50 points).
Week 13 (4-14-2025)	• Social aspects of the engineering project-management role: dealing with people, providing leadership, building effective teams	• [lecture] Achieving *quality* on an engineering project. • [lecture] Ethics in engineering and engineering project management. • Team exercise: the social aspects of engineering project management	• Read chapter 13 of EPM; no written summary is required	• (no homework due this week)

Date of the 1st class session that week	Lectures (Mondays)	Lectures / facilitated lab work (Wednesdays)	Homework assigned	Homework due (*before* the start of the Monday class session)
Week 14 (4-21-2025)	• Engineering economics, part II: financial measures in which your company will be interested: sales, profits, NPV, IRR, payback period, return on investment [ROI], etc.	• Special lecture: AI / ML, or perhaps some other topic • A review of the course-to-date by the professor (for use by the students in advance of the mid-term exam) is available on Brightspace	• Read chapter 14 of EPM; no written summary is required	• **HW 6**: ***2-page*** summary of chapters 3 through 7 of The Economics of Engineering (10 points)
Week 15 (4-28-2025)	• Team presentations	• Team presentations	• Read chapter 15 of EPM; No written summary is required	• **Team reports** are due this week • **Presentation charts** for each team are also due this week (290 points in total for the team project)
Study days (5-3-2025 to 5-6-2025)	• No class and no homework during this time period	• No class and no homework during this time period		
Finals week (5-7-2025 to 5-14-2025)	• **Final examination.** The final examination is probably on **2:00 pm to 4:00 pm on MONDAY 5-12-2025**			

Additional Policies

Late homework assignments will usually be marked down for every day late; in general, ***no*** homework assignments will be accepted more than ***7 days after the due date***. The professor and/or the TA will try to make accommodation for legitimate documented illness or emergency.

The professor will always endeavor to treat his students with respect and dignity; he expects that you will do the same, both to him, and to the other students in the class. He invites questions and discussion, but reserves the right to structure the course and the class time as he sees fit, including the right to request that a student take a line of discussion "off-line" to office hours if the professor believes that this line of discussion is not of general interest to the class, or not contributing to the established teaching objectives for this course.

To quote from a USC guidebook: "Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior, and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem, and may be reported to the Office of Student Judicial Affairs for disciplinary action."

ChatGPT and other similar "AI writing aids"

Tools such as ChatGPT can in fact create written text in response to some of the homework assignments, in particular, for the summaries of reading assignments. I can only urge you ***not to use such tools***.

If I believe that you have used such tools (and, of course, there are methods to detect when such tools have been used), ***I retain the discretion to lower your grade for that assignment, and perhaps even for the entire class.*** For this class, using such tools constitutes cheating.

The purpose of your taking the class is for you to acquire certain knowledge; the purpose of the homework is to stimulate you actually to take the time to do so, and for me to form some objective assessment of whether or not you have in fact succeeded. If you use ChatGPT or some similar tool to write your homework, you are in essence short-changing yourself in the context of this class, and submitting work that is not your as being your own. In my opinion, using tools like ChatGPT to prepare a portion of your homework is a violation of the USC Viterbi School Honor Code (see below), unless your instructor has specifically invited you to use such a tool.

If I believe that you have used such tools (and, of course, there are methods to detect when such tools have been used), ***I retain the discretion to lower your grade for that assignment, and perhaps even for the entire class.***

Also, be warned that ChatGPT has already been "caught" just making up facts out of thin air that "sound good" (for example, https://www.theverge.com/2023/5/27/23739913/chatgpt-ai-lawsuit-avianca-airlines-chatbot-research). The state-of-the-art for these tools is such that they still make a lot of factual mistakes!

USC Viterbi School Honor Code

The following is the USC Viterbi School honor code:

Engineering enables and empowers our ambitions and is integral to our identities. In the Viterbi community, accountability is reflected in all our endeavors.

Engineering+ Integrity.
Engineering+ Responsibility.
Engineering+ Community.
Think good. Do better. Be great.

These are the pillars we stand upon as we address the challenges of society and enrich lives.

This honor code was developed by Viterbi students.

In your written homework, please be sure to cite any referenced sources appropriately. We will not look kindly on plagiarism or cheating; we will hold you to the highest standards in

this regard, and you will receive a grade of zero for the assignment if you are caught cheating or plagiarizing, which will result in a lowered or failing grade for the class. You will also be reported to the appropriate University office for plagiarizing, which could result in further sanctions, including suspension or expulsion from school. Don't do it.

The same, of course, applies to the examinations; you are expected to do your own work during the examination. The only legitimate sources of information about what to expect on the examinations are the professor and the TA currently assigned to the course.

Statement on Academic Conduct and Support Systems

Academic Integrity:
The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - *(213) 740-9355 – 24/7 on call*
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - *988 for both calls and text messages – 24/7 on call*
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

Relationship and Sexual Violence Prevention Services (RSVP) - *(213) 740-9355(WELL) – 24/7 on call*
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - *(213) 740-5086*
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - *(213) 740-5086 or (213) 821-8298*
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - *(213) 740-0776*
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - *(213) 740-0411*
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - *(213) 740-2101*
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

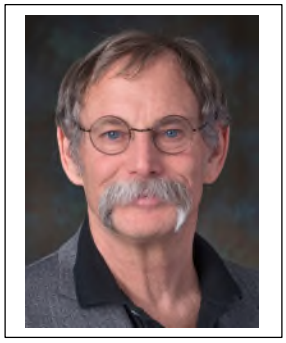
USC Emergency - *UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - *UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call*
Non-emergency assistance or information.

Office of the Ombuds - *(213) 821-9556 (UPC) / (323-442-0382 (HSC)*
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - *(323) 442-2850 or* otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

About the professor



Neil Siegel is the IBM Professor of Engineering Management and Professor of Engineering Practice with Distinction in the Epstein Department of Industrial and Systems Engineering, and is also a professor of Computer Science practice, both within the Viterbi School of Engineering at the University of Southern California. He is a recognized expert in the design and development of large, complex systems that serve important societal needs, both as a practitioner at the largest scales, and as a researcher.

Until his retirement at the end of 2015, he held the position of sector vice-president and chief technology officer at Northrop Grumman, for the Mission Systems and Information Systems sectors. He led the sector's research portfolio ($600M / year), and oversaw the design and development of technical solutions for their customers' most-complex and most-important problems. He also oversaw the sector's 12,000-plus scientists and engineers, directed engineering process improvements, and activities to develop the company's technical talent.

Previously, Dr. Siegel served as vice-president and general manager of the company's Tactical Systems division, and a director of the company's U.K. subsidiary. He has been responsible for engineering projects in many countries, including the United States, the U.K., NATO, Saudi Arabia, etc. In all, he served as a vice-president of the company for nearly 18 years.

Dr. Siegel led the engineering on a large number of successful fielded military, intelligence, and commercial systems, including the U.S. Blue-Force Tracker; the Army's first unmanned aerial vehicle; the Forward-Area Air Defense system; the fire-control segment of the world's first complete laser weapon system; and played important roles for many other systems for ground, sea, space, and cyber-space. These systems have repeatedly been cited as model programs and important national capabilities. He also led work for the steel industry, the movie industry, the healthcare industry, and the electric power industry. He helped to invent techniques to reduce unintended interactions between drugs prescribed by different doctors that are used almost universally in the U.S. and elsewhere, saving many lives each year. Techniques that he pioneered are used in a very large number of consumer devices around the world (including almost every GPS receiver, smart phone, and tablet computer in existence). He is a recognized expert in information networking, especially network management, wireless networks, and networks of mobile devices. Much of his recent research has made contributions in the field of improving development methodology for large-scale systems, through the identification of novel root-causes of system-development failures, new methods to correct those root-causes, and application of those new techniques to problem domains such as health, energy, and Government information systems.

He holds nearly 50 issued and pending patents worldwide.

Among his many honors are the following:

- Election to the U.S. National Academy of Engineering
- Selection as a fellow of the U.S. National Academy of Inventors
- Selection as a fellow of the Institute of Electrical and Electronics Engineers (IEEE)
- Selection as a fellow of the International Congress on Systems Engineering (INCOSE)
- Selection as a Fellow of the Asia-Pacific Artificial Intelligence Association (AIAA)
- The IEEE Simon Ramo Medal for systems engineering and systems science
- His former company's Chairman's Award for Innovation (three times)
- The Army's Order of Saint Barbara
- The iCMG award for system architecture
- The Northern Virginia Technology Council CTO-of-the-year award

Programs that he has led have also won many honors, including the inaugural Crosstalk award as the best-ran software program in the entire U.S. government, the IDGA award as the "Most Innovative U.S. Government Program", and the Federal 100 Monticello Award.

More information is available at neilsiegel.usc.edu.