



School of Engineering
*Sonny Astani Department
of Civil and Environmental
Engineering*

**CE 502: Construction Engineering
Accounting, Finance and Strategy**

Units: 4

Spring 2025 — Mondays, 3:30pm to 6:50pm

Location: LVL 16 (Leavey Library Basement)

Instructor: Ed Reynolds

Office: KAP 200 (behind copier) if on campus

Office Hours: anytime by appointment, before/after class

Slack: *@edreynolds (MOST EFFECTIVE)*

Contact Info: 714-920-9310 (text preferred/provide name)

Email: freynold@usc.edu

Teaching Assistant:

Office: TBD

Office Hours: TBD

Contact Info:

IT Help: DEN Help Desk

Hours of Service: 9am to 4pm M-F

Contact Info: denisc@usc.edu

Course Description (25 Word Catalogue Description)

CE502 explores business skills of construction: accounting, financial concepts, strategic analysis and project finance to help future construction leaders create enduring value.

Expanded Course Description

The purpose of this course is to educate, encourage and excite future leaders in the engineering fields about basic accounting, finance, control and strategic management principles that can lead to successful financial outcomes in competitive marketplaces. The course builds fundamental accounting principles early on then moves into financial analysis and financial control, before entering a study of strategic management.

Strategic management builds on financial analysis and teaches students how to use business tools to evaluate business context: competitors, clients, (customers), services (products), etc. We look at all the elements of a successful firm in the context of finance, human resources, information technology, products and customer strategies. The Class ends with a review of alternative project delivery methods which is an introduction to Project Finance.

About 80% of our student population aspire to be general managers in some capacity. Therefore, I teach CE 502 from the perspective of a General Manager or President of company. From this perspective, it is crucial to know how to create, analyze, interpret and use Financial Information and Evaluate Strategy so managers can make management decisions, enhance productivity, manage cash flow, use externally hired accountants, articulate to stakeholders and enhance net worth.

How the Extra Unit (4th Unit) Is To Be Used (Started Fall 2019)

The extra unit (the fourth unit) of CE502 builds greater in-depth industry analysis based on data and market research, broadens and deepens financial analysis that is briefly reviewed in the three unit class, and builds an understanding of strategic management and planning that includes SWOT analysis, marketing differentiation, and long term planning. CE502 eliminates the redundancies that existed with the old 3-unit Strategic Management class and adds much depth in key success factor for enhancing shareholder value.

Learning Objectives and Outcomes

As a result of taking CE 502, students should be able to manage their own personal finances and understand those of the construction companies many of the students hope they will someday manage. The class is intended to provide analytical skills and insight that will endure and grow throughout the student's career. The core competency achieved from completing CE502 will be the ability to manage a (construction engineering) company from the most important high-level management elements of all: CASH FLOW AND STRATEGIC PLANNING.

Course Notes

SIX MODULES:

There are six modules in CE 502 around which the Class is organized:

CE 502 Modules:

1. Accounting
2. Financial Analysis
3. Business Forecasting
4. Control
5. Project Finance
6. Strategy

Technological Proficiency and Hardware/Software Required

Strategic Analysis Model™ software, S.C. Abraham and Tiffani A. Argandona, December 2011 (Revised January 2017) wrote the software that is likely to be provided by your Professor. SAM™ provides an outstanding Excel-Based financial analysis package which takes basic financial inputs and automatically generates financial analyses and managerial accounting reports for up to 5 years running. Professor Reynolds will provide the spreadsheets that “SAM” is based on.

Required Readings and Supplementary Materials

Homework Assignments

Homework is assigned each week and is due by 6am following the class in which they were due. In the first half of the semester the Homework assignments are highly analytical and have binary solutions: right or wrong. They are easy to grade. After the midterm, homework assignments are more case based and require significant reading building on the quantitative skills developed in the first half of the class. The second half's more subjective homeworks require essays that are graded for key content and do not have clear right and wrong answers. But answers must be supported by analysis and facts.

(Homework assignments can be found in D2L.)

Quizzes

There is at least one quiz in CE502. The quiz counts for no grade credit, but is used as a gauge by the professor to check students progress. Quiz grades are handed out with smiley faces, neutral faces and frowny faces. Any student who receives a frowny face receives a phone call from the Professor to check in on her work progress, gauge if the student has the wherewithal to complete the class, and coach her to success if necessary. The quiz is usually in Class #04.

Workbook

The Accounting workbook is optional, is worth 2% of the grade, and the entire workbook, filled out, is due on the date of the midterm. It is an approximately 32-hour exercise that provides students with the rudiments of accounting they need to know to succeed in the work world. The workbook is about 200 pages long and the answers are posted right next to the questions. Students earn full credit if they turn the workbook and two of the post-tests in completed. Students could, if they like, complete the workbook in one long sitting by just copying the answers into the blanks to earn full credits. These students would get nothing out of the exercise. Students who do the work, find the experience very worthwhile.

An example of a workbook question is this: "Assets minus Liabilities is equal to _____." The answer is located next to the question in the workbook is "Equity" (or Net Worth)

Term Paper

The term paper is a team assignment of about six team members assigned randomly by the professor. The nature of the paper is to complete a financial analysis and strategic evaluation of a company assigned to the team by the professor. Two to three of the students on the team will make a 15-minute presentation on their subject on dates chosen by lottery during the midterm exam. Usually, the dates are the last three classes of the semester. The grades are rewarded on a curve from best to least good.

Cases

From time to time, the Professor will provide and assign case assignments. Cases provide real world learning experiences using industry specific terminology and business situations. Students are expected to completely analyze the cases identifying the problems and potential outcomes. Students will all be prepared to discuss the cases with one student selected at random to begin the discussion. Professor Reynolds recommends you work in teams to evaluate the cases.

Textbooks

Additional required reading and additional optional reading can be found in the D2L. Many times, the textbooks' editions change. I will always refer the latest edition that the bookstore orders. You may use older versions, but please buy only un-used Anthony textbooks of any age.

“The Anthony’s Workbook”

(Required and Due Day of Midterm with Two Post Tests Completed)

Title: Essentials of Accounting (edition does not matter, save money, buy old ones)
Author: Leslie K. Breitner & Robert N. Anthony
Publisher: Prentice- Hall
Edition: Latest or unused old edition
ISBN13: 9780136071822 (does not have to be this version/but cannot be a re-used copy)
Type: paperback workbook with answers
Notes: Please spend the money to buy a new clean, unused version, not one that has been completed by previous students

Note: For Anthony’s workbook, you may use any cleaned (unsolved edition) that you want to buy. It does not have to be latest edition. Digital versions are acceptable. You may not use a workbook that was previously used by another student or one that has been solved. You will have to pick to do two of the Post-Tests for submittal.

Textbook (Required)

Title: Strategic Planning: A Practical Guide for Competitive Success, Second Edition,
Author: Stanley C. Abraham, Cal Poly
Publisher: Emerald Publishing, London (2012)
Edition: Most Recent
ISBN13: 978-1-78052-520-4

Professor Abraham’s textbook is strong on the fundamentals and basics of business strategic planning. It provides essential definitions of terminology and the analytical frameworks you will need to conduct objective and complete strategic analyses of corporations, businesses, and industries.

Textbook (Recommended)

Title	Introduction to Management Accounting, Chapters 1-17 (17 Chapter Version)
Authors	Charles T. Horngren, Gary L. Sundem, William O. Stratton, Dave Burgstahler, Jeff Schatzberg (Reynolds refers to as the “Horngren Text”)
Publisher	Prentice- Hall
Edition	any 17 Chapter version
ISBN13	9780133058789 (latest edition is 16 th from Horngren passing away n 2011)
Type	hardback
Notes:	used/other 17 Chapter versions are as helpful if you want to save money

We do not use Horngren’s textbook explicitly, but if you would like full in-depth reading on the basic concepts in CE502, the textbook provides good material:

CE502 Module #1 -- Basics of Bookkeeping and Module #2 -- Financial Analysis

HORNGREN SECTIONS AND CHAPTERS

V. BASIC FINANCIAL ACCOUNTING

15. Basic Accounting: Concepts, Techniques, and Conventions
16. Understanding Corporate Annual Reports: Basic Financial Statements
17. Understanding and Analyzing Consolidated Financial Statements

CE502 Module #3 -- Forecasting and Module #4 -- Cost Control

HORNGREN SECTIONS AND CHAPTERS

I. FOCUS ON DECISION MAKING

1. Managerial Accounting, the Business Organization, and Professional Ethics
2. Introduction to Cost Behavior and Cost-Volume Relationships
3. Measurement of Cost Behavior
4. Cost Management Systems and Activity-Based Costing
5. Relevant Information for Decision Making with a Focus on Pricing Decisions
6. Relevant Information for Decision Making with a Focus on Operational Decisions

CE502 Module #4 – Cost Control

HORNGREN SECTIONS AND CHAPTERS

II. ACCOUNTING FOR PLANNING AND CONTROL

7. Introduction to Budgets and Preparing the Master Budget
8. Flexible Budgets and Variance Analysis
9. Management Control Systems and Responsibility Accounting
10. Management Control in Decentralized Organizations

IV. PRODUCT COSTING

12. Cost Allocation
13. Accounting for Overhead Costs
14. Job-Costing and Process-Costing Systems

CE502 Module #5 – Project Finance

HORNGREN SECTIONS AND CHAPTERS

III. CAPITAL BUDGETING

11. Capital Budgeting

References (All Available Free, No Cost)

AECOM 10-K and Self Published Annual Reports, recent 5 years (available on line, through the Wall Street Journal or EDGAR, among others)

IBISWorld Industry Reports (Electronic Data Bases)

Available from USC's Marshall Business Library
(<https://my-ibisworld-com.libproxy1.usc.edu/>)

23799, US Heavy Engineering Construction, current version

54133, US Engineering Services in the US, current version

L6722-GL, Global Engineering Services, current version

Wall Street Journal Student subscription (recommended).

Go to: wsj.com/class for a \$4/week subscription rate

Direct Link: (2022) <https://tinyurl.com/yykaecze>

Description and Assessment of Assignments

Mid-term Examination – Closed Book

Final Examination (Date/Time TBA) – Open Book

Classroom Participation/Discussions/Questions

Homework and Quizzes – Team work allowed

Team Term Paper (Due Dated Based on Lottery) – Pre-Assigned Teams

Accounting Workbook (due on date of Midterm) – on your own

Grades: "A" range territory > 92%, "B" range territory > 84%, "C" range territory < 84%

Grading Breakdown

Assignment	% of Grade
Class Participation	10
Homework and Quizzes	8
Workbook	2
Team Term Paper	15
Midterm	30
Final	35
TOTAL	100

Grading Scale

Grades: Generally "A" range territory > 93%, "B" range territory > 84%, "C" range territory < 84% **Please note the word "territory"**. I have the latitude/discretion to assign you a grade based also on your relative grade position in class (i.e., a curve). For example, if you place 52nd out of 73 students and have a grade of 93.3, you may receive a B+. So, the words "range territory" are extremely important and flexible. Note that you may be awarded a B if you score 89 in the class. While there is a grade range numbering system, you are also competing against your classmates for top points so that A's and B's can be assigned.

Participation Note: If you are not ready when I call on you randomly in class, you may get a low mark in participation. Classroom participation will be graded on a curve. Please try to speak in class and add something. Good questions count also.

Calendar: Below is the Calendar for the Semester. A Separate spreadsheet of "Deliverables" is being prepared to aid in knowing what is due and when:

CE 502 Spring 2025 DRAFT (Ed in Patagonia March 7 to March 21)

3:30pm to 6:50pm

<u>Class Date</u>	<u>Class #</u>	<u>Assignment Due (#)</u>
Monday, January 13, 2025	#01/#02	
Monday, January 20, 2025	Holiday -- MLK	OFF
Monday, January 27, 2025	#02/#03	#01/#02
Monday, February 3, 2025	#04	#03
Monday, February 10, 2025	#05	#04 & Quiz
Monday, February 17, 2025	Holiday -- Prez	OFF
Monday, February 24, 2025	#06	#05
Monday, March 3, 2025	#07	#06

Monday, March 10, 2025	#08 Midterm	#07
Monday, March 17, 2025	Holiday -- Spring Break	OFF
Monday, March 24, 2025	#09	#08
Monday, March 31, 2025	#10	#09
Monday, April 7, 2025	#11	#10
Monday, April 14, 2025	#12	#11/Term Paper 1
Monday, April 21, 2025	#13	#12/Term Paper 2
Monday, April 28, 2025	#14	#13/Term Paper 3
Friday, May 9, 2025	Final Exam	2pm-4pm

(#) Note: See the "Deliverables Spreadsheet"

Communicatons with Professor

Please communicate with Professor from 4:30am to 8:30pm unless there is an emergency.

Slack is Fastest and Preferred Slack is a tool that I use in my corporate world for collaboration. There is a slack channel for CE502 that can be accessed by going to <https://usc.enterprise.slack.com/> I have added the USC Slack workspace to my account, and you can create conversations there. I look at Slack often.

Text OK. The second fastest way to communicate with your professor is to text him to get his attention at 714-920-9310. As with all communications to Professor Reynolds, please place your name at the beginning of your message. Reynolds will likely get back to you within two to three hours by text unless he is in a meeting, or your text arrives after 8:30pm and before 5:30am PST. Please always start your text with "Hi, this is Mary Doe...."

Calling is Fine Too. Please feel free to call me but if I do not pick up, do not leave a voice mail message. Simply text me. I own an iPhone so we can eventually Facetime, WhatsApp or use virtual meeting like Slack Huddle, Teams, or Zoom.

Email is Fine, Just Be Patient. You may always email Professor Reynolds, but please be patient and wait 72 hours for a response. Professor Reynolds looks at his USC emails once every other day. So, if you need to get in touch with him immediately please text him.

Meetings. I love meeting students and getting to know them. If you want to meet with me, you may arrange to see me before or after class by appointment. Just send me a text.

Lecture Notes. Reynolds usually posts last week's lecture notes in Slack and in the D2L under the appropriate tab.

On Providing References for Jobs and Schools

I selectively provide written and verbal references for jobs and other programs based on getting to know you in CE502. If you desire me to consider providing you a reference, please contact me. When you contact me, please provide me with the following information:

- Your full name and the nickname I called you in class.
- The year and semester you took CE502
- Your grade in CE502
- Your CV/Resume
- What you are applying for
- Who I should be expecting to respond to or hear from
- The deadline for responding
- Any links or other information that would be helpful.

If you would also kindly write the words you would like me to consider in your reference letter that are unique to you, your qualifications, and your desires, please provide them.

Please do not rely on email alone to contact me. Please make sure you pick up the phone and call me to make sure you register in the front of my brain to get the reference completed.

On Becoming My TA, Course Producer or Grader

Sometimes students who enjoy CE502 desire to return and help me by enlisting as a Teaching Assistant (TA), Course Producer, or Grader. I am honored to consider the pool of applicants. I am grateful. ***It DOES NOT HELP you to send multiple emails expressing your interest.*** You can send me one email telling me you're going to register. I can do nothing about considering you until you are an eligible candidate in the USC System.

The Department of Academic Services in the Civil Engineering Department can provide you access to register your interest on-line and become an eligible candidate. You must be registered to be eligible for me to select you. Once you're eligible I go into the "MyViterbi" system and enter the "Grader and Course Producer Applications" link where I see who I can select. I try to select someone who made herself or himself known to me and scored high marks in my class.

Over the span of a decade, the above system works. But occasionally, the Department directly assigns me an assistant and mandates that I use that assistant for the semester. That mandate renders the use of "MyViterbi" useless for the Semester.

Bottom line: go to the Department Office and register your interest online in case I can select you. Thank you.

Information on Academic Conduct and Support Systems

Use of Artificial Intelligence (AI): *Home - Using Generative AI in Research - Research Guides at University of Southern California (usc.edu)*

Academic Conduct:

Academic Integrity is an elemental value of the Viterbi School. Academic integrity has many dimensions.

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. In the case of suspicion of academic dishonesty, students are referred to the Office of Student Judicial Affairs and Community Standards (SJACS) for further review. Information about the SJACS review process can be found at: <https://sjacs.usc.edu/students/academic-integrity/>. The SJACS website provides additional resources that you may find helpful, so see their website: <https://sjacs.usc.edu/students/>

Support Systems:

Student Health Counseling Services - (213) 740-WELL (9355)– 24/7 on call
engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Sexual Assault & Survivor Support (213) 740-WELL (9355) – 24/7 on call

Relationship & Sexual Violence Prevention and Services

<https://studenthealth.usc.edu/sexual-assault/>

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086 equity.usc.edu,
titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Bias Assessment Response and Support Gender/sexual identity bias – 213-740-7619, email: lgbtqplus@usc.edu

<https://lgbtrc.usc.edu/resources/bias-incident-reporting/>

Harassment/Discrimination Incident Reporting: studentaffairs.usc.edu/bias-assessment-response-support

Office of Student Accessibility Services (OSAS) - (213) 740-0776,
OSASFrontDesk@usc.edu <https://osas.usc.edu/>

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention (CSI) - (213) 740-0411, uscsupport@usc.edu
<https://campussupport.usc.edu/students/>

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call [dps.usc.edu](https://dps.usc.edu/emergency.usc.edu),
emergency.usc.edu

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) 442-120 – 24/7 on call dps.usc.edu

Non-emergency assistance or information.