



University of Alaska Anchorage, School of Engineering  
Engineering and Science Management Department

## ESM 610: Cost Estimating

Spring 2012

*"The world we have made as a result of the level of thinking we have done thus far creates problems we cannot solve at the same level of thinking at which we created them."*

*Albert Einstein*

**Class Meetings:** January 17 to April 24\*, 2012 (see schedule on last page)  
Tuesdays 5:30 PM – 9:00 PM, University Center (UC) 145

**Instructor:** Mike Fisher, MSPM, MBA, PMP  
UAA Blackboard: <http://www.uaa.alaska.edu/classes/>  
Other assistance: Michelle Whitney, ESM Admin Support, 786-1999, [anmlw1@uaa.alaska.edu](mailto:anmlw1@uaa.alaska.edu)

**Office Hours:** By appointment only. Please call or e-mail to schedule.

**Textbooks:** ***Cost Estimation and Management: A Practical Approach*** by Michael Fisher **(to be published by 12/31/11)**

***Cost Estimating and Contract Pricing: Tools, Techniques, and Best Practices*** by Gregory A. Garrett  
ISBN-13: 978-0-8080-1819-3  
<http://www.amazon.com/Estimating-Contract-Pricing-Gregory-Garrett/dp/0808018191>

### Objectives:

Cost estimating is a predictive process used to quantify, cost, and price the resources required by the scope of an asset investment option, activity, or project. As a predictive process, estimating must address risks and uncertainties. The outputs of estimating are used primarily as inputs for budget, cost, or value analysis; decision-making in business, asset, and project planning; are for project cost and schedule control processes.

Costs are at the heart of every technical decision an engineering or technical manager makes; whether making an equipment selection, conducting cost comparisons, or pricing a new product or service, no decision is made without the complete understanding of the costs.

The objective of this class is to examine the development of estimates, how they are made, the kinds and accuracies of estimates, and where they should be used in order to allow the engineering or technical manager to perform at their best. It is not the intent of this class to make you a professional estimator or quantity surveyor, but rather to give you an understanding of how estimates are performed so that as a manager you are capable of asking the right questions, assuring that comparisons are done on an equivalent basis, and facilitating the work of the professionals you manage.

### Grading and Expectations:

The following expectations are set forth, in advance, so that we can be productive with our time in class and ensure that everyone receives quality education. As a student, it is your responsibility to read, understand, and meet these expectations. This is a graduate-level course. I expect you to act professionally with respect to attendance, participation in homework reviews and other discussions, and quality of work. Read all assigned material prior to the start of the class for which it has been assigned. All assigned work is due no later than 5:30pm (according to UAA's Blackboard system) on the dates indicated on the class schedule. No late work will be accepted, except for valid reasons; for the midterm, final paper, and final presentation, any delays must be approved in advance in writing. As a matter of policy, I do not offer extra credit or opportunities to redo coursework. It should go without saying that plagiarism is both unacceptable and very serious issue; if plagiarism is discovered, the instructor shall at his discretion give zero credit for the plagiarized assignment, assign an F for the class, and/or report the plagiarism to the ESM Department and other campus authorities.

**Homework:** Post your homework to Blackboard no later than 5:30pm on the day they are due. If you are unable to make it to class, post your work or make written arrangements with me *in advance*. Four assignments will be given in class. A fifth homework assignment is to complete the NHI-134005A web-based course on value engineering<sup>1</sup>.

**The Midterm Exam** will cover information covered in class to date, including the textbooks, other assigned reading (if applicable), and lecture materials. This will be an in-class, closed-book/notes/internet exam.

**The Final Exam** will cover all information covered in class, including the textbooks, other assigned reading (if applicable), and lecture materials. This will be an in-class, closed-book/notes/internet exam.

**Term Project:** The term project is made up of a proposal and plan, final presentation, and a term research paper. Papers should focus on a cost estimating topic that can be approached academically. You are encouraged to identify a topic relevant to your academic, professional, or personal interests. The topic should be substantially original and research-based, and should reflect graduate-level work in terms of selecting a topic, conducting research, and approaching the problem on an intellectual basis. Fun topics are encouraged, but they must be approached seriously. You are responsible for selecting an appropriate topic and getting approval for the topic early on.

One category of potential paper topics is to look at advances in and/or the future of a tool, process, or other issue related to cost estimating. Another category includes an analysis of your company's cost estimating process with the goal of developing a strategy for improvement based on a literature review. Other topic ideas may emerge from classroom discussions or from discussions you have with your employer and/or peers.

*Your project proposal* will be presented in the 6<sup>th</sup> class. At this time, you should have researched your topic and determined that it will be appropriate based on both its connection with the topics covered in this class and the sufficiency of its breadth and depth to meet course requirements. The purpose of the project is not simply to develop a cost estimate. Confirm ahead of time with the instructor if you have concerns about the ability of your topic to meet the class requirements. The proposal presentation is expected to be 5–10 minutes in length, including time for questions and feedback. A PowerPoint presentation may enhance delivery, but it is optional and not required.

*The final presentation* is expected to be a PowerPoint (or similar) presentation approximately 15-20 minutes in length, plus an additional 5 minutes for questions and answers. Actual times may vary depending on enrollment. Bring your own laptop for the proposal and final presentations, and be sure to test the presentation capabilities ahead of time.

*The final paper* should be approximately 10–15 pages in length, not including the front matter, bibliography, and appendices. This length is based on 1.5 line spacing, 12pt Times Roman or similarly-sized font, and 1" page margins. If you include proposals, estimates, reports, and other materials from your employment or other studies, these should be included in the appendices (except for brief quotations) and will not count toward the length requirement.

Your paper is expected to be a journal-quality academic paper in accordance with the UAA Student Code of Conduct<sup>2</sup>. This means that your work should be original, draw on a variety of peer-reviewed publications, and cite and provide complete references for all material used. You are required to use at least two references from peer-reviewed academic journals published since 2000, and at least 5 references total. The objectives of the term paper are to demonstrate mastery, interest, and application of a cost estimating topic. The paper will be graded on content, organization, creativity, and demonstration of knowledge of the subject. It may be helpful to consider this paper as a prelude to your final research paper for the ESM 684 course. Remember that the term project makes up half of the total course grade.

**Submitting your work:** Except for the exams, which will be completed in class, submit all of your work via Blackboard's discussion board. Printed copies are not required for any of the work you submit. All feedback I provide on graded items will be sent by e-mail via the Blackboard communication system, so ensure your UAA mailbox has space; note that forwarded e-mail still fills your mailbox. Grades will be sent with the feedback. Completed exams will not be returned.

If you experience a disability and would like information about support services, contact Disability Support Services, located in RH 105 at 786-4530. For more information, visit the DSS website at <http://www.uaa.alaska.edu/dss/>.

## Grading

Final grades will be based on the following scale: A (≥90%), B (80%-90%), C (70%-80%), and F (<70%). A B grade represents the basic, minimal standard for graduate work. Therefore, anything below a C grade will be considered a failing grade (F).

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<sup>1</sup> Details to be provided in class

<sup>2</sup> <http://www.uaa.alaska.edu/deanofstudents/StudentJudicialServices/academicintegrity.cfm>

Grades may be curved or otherwise scaled at the instructor's discretion.

Your final grade will be weighted (subject to any curving or scaling) according to the following table:

<b>Graded Item</b>	<b>Percent of Grade</b>	<b>Description</b>
Homework Assignments	30	Four assignments, each worth 5% of total
NHI-134005A Course	5	Completion of the NHI-134005A web-based course, "Introduction to Value Engineering" (complete course and show me your certificate)
Midterm	15	In-class midterm exam
Final Exam	15	In-class final exam
Term Project	25	Proposal presentation (5%), final presentation (10%), final research paper (10%)
Class Participation	10	Attendance, participation in homework and other discussions, and discretionary
<b>Total</b>	<b>100</b>	

