

College of Architecture
DEPARTMENT OF CONSTRUCTION SCIENCE
Spring 2022 V-1 – 1-13-2022

Course Information

Course Number: COSC 375, Sections 501 - 504

Course Title: Estimating II

Sections/Time/Locations: Lecture Sections 501-504: TR – 08:00 AM – 08:50 AM, ARCB 101
Lab Section 501: TR – 09:35 AM – 10:50 PM, FRAN 204
Lab Section 502: TR – 11:10 AM – 12:25 PM, FRAN 204
Lab Section 503: TR – 02:20 PM – 03:35 PM, FRAN 204
Lab Section 504: TR – 03:55 PM – 05:10 PM, FRAN 204

Credit Hours: Credits 3. 2 Lecture Hours. 3 Lab Hours. 3(2-3)

Instructor Details

Instructor: Gary L. Boldt

Office location: Francis Hall, Room 320

Phone number: 979-458-9381

Email: garylboldt@tamu.edu

Office hours: MW - 09:30 AM – 04:30 PM
F - By Appointment

Course Description

Quantification and pricing of direct field costs and general condition costs from construction documents; the preparation of complete lump sum bid package ready for project execution; complete set of contract documents required.

Course Prerequisites

Prerequisites: Admission to upper level in Construction Science; COSC 275.

Course Learning Outcomes:

- **University Student Learning Outcomes:** Master the depth of knowledge required for a degree.
- **ACCE Student Learning Outcomes:** Create Construction Project lump sum bid package.
- **Rubrics:** Quantitative literacy, see attached chart or per Assignment, Quiz or Test.

ACCE Student Learning Outcomes, upon successful completion of this course, students will be able to:

- Create construction project cost estimates - **SLO #4**
- Analyze professional decisions based on ethical principles - **SLO #6**
- Analyze construction documents for planning of construction processes – **SLO #7**
- Apply Electronic-based technology to manage the construction process - **SLO #10**

Rubrics:

- Written Communication
- Oral Communication
- Ethical Reasoning

Textbook and/or Resource Materials:

- The College of Architecture requires all students to have a personal laptop computer. This laptop is required to perform classroom activities. You will need your laptop in this course and you are required to bring an operational laptop and all required items to class every day. **Note that your laptop computer must be able to operate with Windows Formatted Programs for this class. The Apple/Mac or Other Non-Compatible Operating Systems will not work with the course issued software. The software, Boot Camp, is available at a discounted price from the campus Software Center located in the Computing Service Center on campus for Apple/Mac systems. The computer software you will be installing and using for this class will be On-Center, On-Screen Takeoff and Microsoft MS Project.** (No Exceptions)
- Drawings & Specifications. (Will be Provided Electronically by Instructor)
- On-Screen Takeoff Software. (Licenses Will be Provided by Instructor)
- BLUEBEAM Software. (Licenses Will be Provided by Instructor)
- You will need a USB thumb/flash drive to transfer important files/information and perform homework assignments, a three ring binder to keep lecture and lab notes, handouts, class homework assignments, quizzes and exams during the course, a 70 sheet spiral notebook for lecture notes, a No. 2 pencil, a Blue Black and Red Pen, a Non-Programmable Calculator 12-digit calculator with a double zero (00) key calculator, Scantron Form 882-E Green and Scantron Form O-101607-TAMU Grey as needed for quizzes and exams. **All listed items will be needed on the first day of class.** NOTE - Programmable calculators cannot be utilized in this class.

For Reference Only Books and Items:

- Estimating In Building Construction, by Frank R. Dagostino & Steven J. Peterson, Eighth Addition; Prentice Hall
- RS Means Building Construction Cost Data, Current Edition, by Stephen C. Plotner, Gordian Group

Grading Policy:

Major Assignments and Grading Values:

1. Homework Assignment Numbers 1 – 5	2,400 Points
2. Quiz Numbers 1 – 4	1,280 Points
3. Semester Project	1,080 Points
4. Exam Numbers 1 – 2	1,920 Points
5. Final Exam	1,080 Points
6. Service Assignment	240 Points
	Total Points
	8,000 Points

Final course grades will be assigned as follows, based on the weighted number of points earned as a percentage of total points possible:

A	89.95% or above
B	79.95% - 89.94%
C	69.95% - 79.94%
D	59.95% - 69.95%
F	less than 59.94%

Graded Attendance Policy:

Rules concerning excused absences may be found at <http://student-rules.tamu.edu/rule07>. In particular, except for absences due to religious obligations or emergencies, the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. By state law, if a student is absent from a class due to an obligation of his or her religion, the absence is excused. A list of days of religious obligation for the coming semester may be found at <http://student-rules.tamu.edu/append4>. **Note that attendance is critical in this class to keep up with assignments and quizzes. Anyone who has more than four (4) unexcused absences from either or a combination of lectures and labs will be required to meet with Professor Boldt and the Department Head, Dr. Phil Lewis to address the unexcused absences. Failure to meet and address the unexcused absences will result in a (five percent) 5% reduction to your total grade for the class. Students who maintain perfect attendance for the class will be given a (one percent) 1% addition to your total grade for the class. It is the student's responsibility to maintain their own attendance record for the class.**

Late Work Policy:

- Late Work for unexcused absences will be accepted if the student notifies the faculty member in advance of the late work submission and the student receives approval for the late submission.
- The penalty for the Late Work submission will be 25% one day of late submission (24 Hours from due date and time) and 50% penalty for two days of late submission (48 Hours from due date and time).
- Work shall be constituted as Late Work if it is not submitted by the indicated Due Date or Submission Date for the individual Homework Assignments, Quizzes, Exams, Semester Project or the Final Exam.

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy ([Student Rule 7](#)).

Course Schedule:

*** The instructor reserves the right to make required changes to the CALENDAR OF ACTIVITIES AND MAJOR ASSIGNMENT DATES, as required. ***

Wk	Day	Dates	Class Details for Spring 2022	SLO
1	M	17-Jan	<i>Martin Luther King, Jr. Day. Faculty and Staff Holiday.</i>	
	T	18-Jan	First day of spring semester classes.	
	T	18-Jan	LECTURE 1 –Syllabus Review, Estimating Basics, Excel Sheets	
	T	18-Jan	LAB 1 - Syllabus Questions, Estimating Basics, Project Selection Exercise, Knowledge Exercise	4, 6, 7, 10
	R	20-Jan	LECTURE 2 – Analyze Bid Types, Potential Bids and How to Select Projects to Bid	
	R	20-Jan	LAB 2 – Formatting Selected Bidding Information for Final Selection	

Wk	Day	Dates	Class Details for Spring 2022	SLO
2	M	24-Jan	5 p.m., Last day for adding/dropping courses for the spring semester.	
	T	25-Jan	LECTURE 3 – Company Creation and What to look for in the Project Selection	
	T	25-Jan	LAB 3 – Setting Up Elements of the Bid – Issue HW-01	4, 7, 10
	R	27-Jan	LECTURE 4 – Bid Package Review, General Conditions, Subs, Self-Perform.	
	R	27-Jan	LAB 4 – Formatting Material Pricing Sheets and Subcontractor Request.	

Wk	Day	Dates	Class Details for Spring 2022	SLO
3	T	1-Feb	LECTURE 5 – Material Pricing Sheets and Subcontractor Solicitations.	
	T	1-Feb	LAB 5 – Special and General Conditions. - Issue HW-02	4, 7, 10
	W	2-Feb	Spring official census date.	
	R	3-Feb	LECTURE 6 – Establishing Special & Gen Conditions and Addendum	
	R	3-Feb	LAB 6 – Review Various Specifications -- Special & General Conditions	

Wk	Day	Dates	Class Details for Spring 2022	SLO
4	T	8-Feb	LECTURE 7 – Comparing Special Requirements and General Conditions.	
	T	8-Feb	LAB 7 – Work on Establishing Time and General Condition Cost.	
	R	10-Feb	LECTURE 8 – General Solicitation of Material and Subcontractor Bids.	
	R	10-Feb	LAB 8 – Working with Excel in preparing bidding worksheets.	
	S	12-Feb	Aggieland Saturday, 8:30 AM – 2:00 PM	

Wk	Day	Dates	Class Details for Spring 2022	SLO
5	M	14-Feb	<i>Undergraduate deadline to submit a request for change of curriculum.</i>	
	T	15-Feb	LECTURE 9 – General Solicitation of Material and Subcontractor Bids.	
	T	15-Feb	LAB 9 – Working with Excel in preparing bidding worksheets.	4, 7, 10
	W	16-Feb	<i>Career Fair Social Mixer</i>	
	R	17-Feb	<i>CIAC Career Fair at the Brazos County Expo Complex. All COSC classes cancelled except those that begin at 5 p.m. or later.</i>	
	R	17-Feb	<i>New Course Proposals Due to Department Committees</i>	
	F	18-Feb	<i>CIAC Career Fair Interviews. COSC classes are not cancelled.</i>	
	F	18-Feb	<i>Last Day for May graduates to apply for graduation without a late fee</i>	

Wk	Day	Dates	Class Details for Spring 2022	SLO
6	T	22-Feb	LECTURE 10 – Bringing the Package together for Starting Bid Preparations. - <i>Issue HW-03</i>	
	T	22-Feb	LAB 10 – Continue work with Excel in finalizing Bidding Worksheets.	
	R	24-Feb	LECTURE 11 – Bringing the Package together for Starting Bid Preparations.	
	R	24-Feb	LAB 11 – Continue work with Excel in finalizing Bidding Worksheets.	
	F	25-Feb	<i>Virtual Career Fair. COSC classes are not cancelled.</i>	
	F	25 to 27-Feb	<i>Harold Adams Interdisciplinary Charrette for Undergraduates (ICU)</i>	

Wk	Day	Dates	Class Details for Spring 2022	SLO
7	T	1-Mar	LECTURE 12 – Work on quantifying and inputting all quantities into spreadsheets to define items of work for the project.	
	T	1-Mar	LAB 12 – Continue work with Excel in finalizing Bidding Worksheets.	
	R	3-Mar	LECTURE 13 – Continue to Package for the Bid. – Exam 1 Review and Discussion	
	R	3-Mar	LAB 13 – Continue work with Excel in finalizing Bidding Worksheets. – <i>EXAM No. 1 SLO – Including All Material Covered to Date.</i>	4, 6, 7, 10

Wk	Day	Dates	Class Details for Spring 2022	SLO
8	M	7-Mar	<i>Mid-Semester Grades Due by 11 am</i>	
	T	8-Mar	LECTURE 14 – Finalize <i>HW-03</i> for submission.	
	T	8-Mar	LAB 14 – Finalize and Submit <i>HW-03</i>	
	R	10-Mar	LECTURE 15 – Exam 1 Review and Discussion.	
	R	10-Mar	LAB 15 – Including All Material Covered to Date. - <i>Issue HW-04</i>	4, 7, 10

Wk	Day	Dates	Class Details for Spring 2022	SLO
Sg Bk 2022	M	14-Mar	Student Spring Break	
	T	15-Mar	Student Spring Break	
	W	16-Mar	Student Spring Break	
	R	17-Mar	Student Spring Break	
	F	18-Mar	Student Spring Break	

Wk	Day	Dates	Class Details for Spring 2022	SLO
9	T	22-Mar	LECTURE 16 – Putting the Parts Together for Bid Day - Preparing for Bid.	
	T	22-Mar	LAB 16 – Take Off of Metal Studs & Drywall and Acoustical Ceilings – Pricing and Establishing labor Unit or Crew costs.	4, 7, 10
	R	24-Mar	LECTURE 17 – Takeoff of Various Elements of the Project, Subcontracted VS Self Performed.	
	R	24-Mar	LAB 17 – Takeoff of Doors & Hardware and Miscellaneous Items. – Issue HW-05.	
	R	24-Mar	Spring 2021 Pre-Registration for Students	

Wk	Day	Dates	Class Details for Spring 2022	SLO
10	T	29-Mar	LECTURE 18 – Comparisons Between Subcontracted and Self Performed Work Packages.	
	T	29-Mar	LAB 18 – Takeoff of Doors & Hardware and Miscellaneous Items.	4, 7, 10
	W	30-Mar	Field Trip Day – All COSC Upper Level and Graduate classes cancelled.	
	W	30-Mar	Rowlett Lecture, CLAR classes typically cancelled.	
	R	31-Mar	LECTURE 19 – Working Through the Final Facts and Figures for the Bid, who is Responsible for the Various Parts of the Bid	
	R	31-Mar	LAB 19 – Finalize Bid Documents, Takeoffs, Sub/Material Sheets. – Issue Semester Project Requirements.	

Wk	Day	Dates	Class Details for Spring 2022	SLO
11	T	5-Apr	LECTURE 20 – Alternates and Addendum are They Covered in our Bid.	
	T	5-Apr	LAB 20 – Prepare Bid to Combine Components working to Final Bid.	
	R	7-Apr	LECTURE 21 – Which Subcontractor or Supplier Bid is the Correct Subcontractor or Supplier bid?	
	R	7-Apr	LAB 21 – Work on reviewing initial Subcontractor and Supplier Bids to determine compatibility with plans and specifications?	
	F	8-Apr	Family Weekend April 8 thru April 10	

Wk	Day	Dates	Class Details for Spring 2022	SLO
12	T	12-Apr	LECTURE 22 – When do we have to call Time? How Long can we Hold Off before we have to Finalize all the Numbers?	
	T	12-Apr	LAB 22 – Takeoff of Doors & Hardware and Miscellaneous Items. – Continue work on HW-05 & Semester Project	
	R	14-Apr	LECTURE 23 – When do we have to call Time? How Long can we Hold Off before we have to Finalize all the Numbers?	
	R	14-Apr	LAB 23 – Takeoff of Doors & Hardware and Miscellaneous Items. –	
	F	15-Apr	<i>Reading Day, no classes.</i>	

Wk	Day	Dates	Class Details for Spring 2022	SLO
13	T	19-Apr	LECTURE 24 – Bid Day Part One	
	T	19-Apr	LAB 24 – Turn in Homework No. 5. Start of Bid Day Part One	4, 6, 7, 10
	T	19-Apr	<i>Last day for all students to drop courses with no penalty (Q-drop).</i>	
	T	19-Apr	<i>Last day to change KINE 198/199 Grade Type for Spring 2022.</i>	
	T	19-Apr	<i>Last day to officially withdraw from the University.</i>	
	T	19-Apr	<i>Last day to apply for Spring 2022 graduation online.</i>	
	T	19-Apr	<i>Spring 2022 Degree Candidates Degree Requirement Verification (DRV)</i>	
	R	21-Apr	LECTURE 25 – Finalize of Bid Day Part Two	
	R	21-Apr	LAB 25 – Submit Semester Project – Final Bid Submission	4, 6, 7, 10
	R	21-Apr	<i>Muster, Campus Ceremony</i>	
	F	22-Apr	<i>Hard Hat Ceremony, Rudder Auditorium</i>	

Wk	Day	Dates	Class Details for Spring 2022	SLO
14	T	26-Apr	LECTURE 26 – Exam 2 Review and Questions	
	T	26-Apr	LAB 26 – Exam No. 2 SLO Including all Material Covered from Exam No. 1 to present.	4, 6, 7, 10
	R	28-Apr	LECTURE 27 – Final Exam Review and Questions Exam 2 Review.	
	R	28-Apr	LAB 27 – Final Exam Review. Including all Material Covered from Exam No. 1 and Exam No. 2 to present.	
	R	28-Apr	<i>Scholarship and Awards Banquet at Texas A&M Betancourt Ballroom and Rudder Auditorium</i>	
	F	29-Apr	<i>CIAC Board Meeting at Texas A&M Rudder Tower</i>	

Wk	Day	Dates	Class Details for Spring 2022	SLO
15	M	2-May	<i>Pursuant to Student Rule 8.3, no regular course examinations shall be given during the 15th week of classes.</i>	
	T	3-May	<i>Redefined day, students attend their Friday classes, no regular course examinations shall be given during the 15th week of classes.</i>	
	T	3-May	<i>Last Day of classes of fall semester classes.</i>	
	T	3-May	<i>Last Day to apply for all degrees to be awarded in May.</i>	
	W	4-May	<i>Reading Day, No Classes, No exams or assignments can be given/due.</i>	
	F	6-May	<u>FINAL EXAM</u> 5/6/2022 From 01:00PM to 03:00PM - Rm ARCB 101	4, 6, 7, 10

COURSE LEVEL	COSC/ACCE LEVEL
Create project estimates and conceptual estimates.	SLO #4: Create construction project cost estimates
Exposure to ethical practices in the execution of a lump sum bid proposal	SLO #6: Analyze professional decisions based on ethical principles
Apply plan and specification reading skills Analyze critical information from specifications, plans, and subcontractor & supplier bids	SLO #7: Analyze construction documents for planning and management of construction processes
Organize the quantification/takeoff process for items of work using appropriate technology	SLO #10: Apply electronic-based technology to manage the construction process

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in [Student Rule 7](#), or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.

- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention—including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at <https://suicidepreventionlifeline.org>.

COVID-19 Guidance

Refer to web site <https://www.tamu.edu/coronavirus/index.html> for current and updated requirement that Texas A&M University had instituted to be followed regarding COVID-19. Students are encouraged to review the site and make sure that all guidelines are followed. This site will address testing, reporting requirements and safety measures related to COVID-19.

Bring Your Own Device (BYOD)

The College of Architecture requires all students to have a personal laptop. This laptop is required to perform classroom activities based on the courses taken. Refer to **Textbook and/or Resource Materials:** see requirements <http://www.arch.tamu.edu/inside/services/information-technology-services/recommended-laptop-enrolled-students/> for additional information.

Care of Facilities

Please respect your facilities in the College of Architecture (studio space, photo lab, shop, labs, etc.) Throughout the semester and at the end of the semester, your area must be clean of all trash.

Defacement of University Property

"It is unlawful for any person to damage or deface any of the buildings, statues, monuments, trees, shrubs, grasses, or flowers on the grounds of any state institutions of higher education ([Texas Education Code Section 51.204](#))" The words damage or deface refer specifically to any and all actions, whether direct or indirect, that either diminish the value or mar the appearance of the physical environment.

Disruptive Behavior

If a student's behavior in class is sufficiently disruptive to warrant immediate action, the instructor is entitled to remove a student on an interim basis, pending an informal hearing with the Head of the Department offering the course. This hearing must take place within three working days of the student's removal. This rule and supporting information may be found at <http://student-rules.tamu.edu/rule21>.

Copyright

Gary L. Boldt reserves copyright to all materials used in this course. This means all materials generated for this class, which includes but is not limited to syllabi, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy any material, unless expressly granted written permission. Note this written permission is required for anyone to post on-line any elements of this class. Violations of this will be turned over to the University IT department for actions under copyright and plagiarism violations to the student's academic and honor code.

Plagiarism

It is very important to read other people's work and to use their ideas in developing theses, professional papers, or otherwise completing academic requirements. This is called scholarship and is highly rewarded because it builds a cumulative body of knowledge. When other scholars share their ideas, they expect that others will give them credit when making use of their ideas. It is critically important for students to understand the rules for properly crediting other people's ideas when writing a thesis or professional paper or otherwise completing academic requirements.

If you use someone else's idea without using his or her specific words, this is called paraphrasing. When you paraphrase, you are expected to indicate the source of the idea (the author and publication date, but not a page number). This allows a reader to find the source of the ideas, verify that you have accurately represented them, and obtain additional information about those ideas if necessary.

If you use someone else's exact words, this is called quoting. When you quote, you are expected to enclose the words in quotation marks, and indicate the source of the quote (the author, publication date, and page number).

Plagiarism also applies to information found on the web; it is equally important to cite a web source and the rules above pertain. Consequently, if there are not quotation marks around the text and no source is cited, instructors will assume that you intend for them to conclude that any ideas, especially the specific words, that you presented in your work are your own.

Thus, if the idea or the exact words are taken from another source and you do not indicate the source of the idea, you are representing another person's ideas as if they were your own. This is called plagiarism and is a very serious offense.

All paper submittals need to have a cover sheet with *turnitin.com* report showing a score less than 10%. See the Evans library for more information since it is at no cost for our students.

Required Department Field Trip

All students in Upper Level Classes are required to attend the one of the Field Trips on March 30, 2022. Participation in the field trip will count as the same as class attendance.

Items Specific to This Class

The Service Assignment will consist of 3 Hours of community service with a report written, Two Pages Double Space Times New Roman on 12 Font. Oral reports of the service assignments will be given, as time allows, within the course of the class. Scoring or grading rubrics will be used to delineate consistent criteria for grading on this assignment and each assignment given for this class. Final requirements will be posted to eCampus.

INQUIRY AND ANALYSIS VALUE RUBRIC

Definition

Inquiry is a systematic process of exploring issues, objects or works through the collection and analysis of evidence that results in informed conclusions or judgments. Analysis is the process of breaking complex topics or issues into parts to gain a better understanding of them.

	Capstone 4	Milestones		Benchmark 1
	3	2	1	
Topic selection	Identifies a creative, focused, and manageable topic that addresses potentially significant yet previously less-explored aspects of the topic.	Identifies a focused and manageable/doable topic that appropriately addresses relevant aspects of the topic.	Identifies a topic that while manageable/doable, is too narrowly focused and leaves out relevant aspects of the topic.	Identifies a topic that is far too general and wide-ranging as to be manageable and doable.
Existing Knowledge, Research, and/or Views	Synthesizes in-depth information from relevant sources representing various points of view/approaches.	Presents in-depth information from relevant sources representing various points of view/approaches.	Presents information from relevant sources representing limited points of view/approaches.	Presents information from irrelevant sources representing limited points of view/approaches.
Design Process	All elements of the methodology or theoretical framework are skillfully developed. Appropriate methodology or theoretical frameworks may be synthesized from across disciplines or from relevant subdisciplines.	Critical elements of the methodology or theoretical framework are appropriately developed, however, more subtle elements are ignored or unaccounted for.	Critical elements of the methodology or theoretical framework are missing, incorrectly developed, or unfocused.	Inquiry design demonstrates a misunderstanding of the methodology or theoretical framework.
Analysis	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.	Organizes evidence to reveal important patterns, differences, or similarities related to focus.	Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities.	Lists evidence, but it is not organized and/or is unrelated to focus.
Conclusions	States a conclusion that is a logical extrapolation from the inquiry findings.	States a conclusion focused solely on the inquiry findings. The conclusion arises specifically from and responds specifically to the inquiry findings.	States a general conclusion that, because it is so general, also applies beyond the scope of the inquiry findings.	States an ambiguous, illogical, or unsupportable conclusion from inquiry findings.
Limitations and Implications	Insightfully discusses in detail relevant and supported limitations and implications.	Discusses relevant and supported limitations and implications.	Presents relevant and supported limitations and implications.	Presents limitations and implications, but they are possibly irrelevant and unsupported.