CAPSTONE PROJECT REGULATIONS
FOR THE

MS IN BUSINESS ANALYTICS
2023-2024
Last updated: 26 September 2023

1. MISSION AND OBJECTIVES

The capstone project is an individual consulting field assignment, which business Master of Science (MS) students undertake as professional consultants to a client organization.

- **The project runs from March to early June**. CEU provides matchmaking during the months of January and February. The timeline is flexible as per the client's needs. See Section 4 for the project timeline and process.
- **The client may be any organization** e.g. corporate, advisory, startup, investor, research institute, government, charity.
- **Students must apply the spectrum of skills they have acquired in their course work**. They are supposed to interact with different stakeholders at the organization including decision makers, analysts, functional experts and vendors.
- **Students may work as external consultants, interns, or employees**. They may work onsite or remotely. The work must be individual; joint work requires approval of the program head.
- **The project must answer a real client's need with clear and valuable outcomes**. It must be feasible within the project timeline.
- **The project is confidential**. Rights to the work and deliverables produced vest in the client.

2. STUDENT SKILLS AND POSSIBLE PROJECTS

Students are professionally and internationally diverse and have a broad range of preexisting skills.

Students must participate in a complete analytics workflow. They have covered a broad mix of coding, data analytics, data science, data engineering, data visualization and analytics management. The project should include some elements of statistical analysis (exploratory, predictive, or causal).

3. RESPONSIBILITIES

The student owns and governs the project as a professional consultant. The student:
- establishes client needs, diagnoses problems, develops and executes a realistic project plan
- maintains a rich working relationship with the client throughout the project
- provides clear actionable recommendations and assists implementation as necessary

The client assigns a project sponsor to serve as the student's main client contact. The sponsor:
- is available for professional and technical guidance. The time they may spend on the project will depend on its nature and scope. We recommend bi-weekly update meetings in person/online
- discusses the student's project performance with the capstone project manager as necessary
- completes the client feedback form on the project's conclusion

CEU appoints senior faculty as capstone project manager(s). The capstone manager
- solicits and approves high-level project proposals acting as a matchmaker between clients and students
- communicates project processes, requirements, deadlines, and other operative issues
- guides students and clients through any legal and administrative hurdles
- discusses the student's project performance with the project sponsor as necessary

The student may request a faculty supervisor for professional and technical guidance. CEU can only commit to providing faculty supervision in the period between April and June.

4. PROJECT PROCESS AND TIMELINE

The project timeline is flexible, the client may request earlier dates and additional milestones. The dates below are final administrative deadlines for students who wish to graduate in June 2024.

- **Mid-October:** Student pro-actively looks for a potential client in his/her network and sphere of interest.

- **Mid-November:** Student reports to the Capstone Manager if any potential clients/projects have been established or identified. Any concerns and questions are addressed between student and Capstone Manager.

- **December-February: Client submits high-level project proposal. Student contacts capstone project manager with expression of interest, any preferences, or requests.** The capstone project manager must be informed of any direct client-student communication.

- **19th March: Capstone project manager assigns student to project. Client assigns project sponsor.**

- **1st April: Student submits Project Initiation Document (PID), any request for faculty supervision to program coordinator.** The student works with the project sponsor to develop the draft PID.

- **12th April: Project begins.** The project kickoff documents (PID, letter of terms, NDA) are finalized).

- **12th May: Student submits interim progress report to program coordinator.** The report should discuss the project's status, interim outcomes, work to be done, any problems or issues.

- **10th June: Student submits final deliverables to Project Sponsor and Program Coordinator.**
- **13-14th June:** Final Exam

If the student cannot complete the capstone project by 10th June 2023 he/she may request an extension by notifying the Program Head, Capstone Project Manager, and the Program Coordinator. The default length of extension is 12 months, with the student reassigned to the next year project cycle with similar deadlines for graduation in June next year. The extension of the capstone project cannot be a basis for extending enrollment at CEU; on June 30, CEU status of students postponing their capstone project will be changed from "Enrolled" to "Absolutorium, thesis due".

Students cannot seek an extension and must complete the capstone project by 10th June 2023 if the student is a non-EU/EEA national seeking to apply for a residence permit for the purpose of job searching or entrepreneurishp in Austria.

5. FINAL DELIVERABLES

1. **Project presentation**. A presentation in slideshow format including 10-20 slides. While the presentation may include some technical aspects, it should focus on the problem, way to the solution, actionable outcomes, and recommendations.

   The student *may* be requested to do a presentation showcase by the project sponsor, capstone project manager or program head. The showcase may be attended by other client stakeholders, as well as CEU faculty and students subject to the prior consent of the proposal sponsor.

2. **Project technical discussion**. A complete consulting-style report of 20-25 A4 pages of text, data tables, charts, and other visuals as necessary, integrated with the text. The document must be designed to the client's needs and requirements. It must be comprehensive and deliver a detailed description of all aspects of the work. Charts and other exhibits should be properly annotated and typeset in a professional quality. The report should include bibliographic references (instead or in addition to hyperlinks) and adhere to academic ethical standards, including but not limited to CEU Policy of Student Plagiarism.

3. **Public project summary**. A three-page essay summarizing the project and uploaded to CEU's [Electronic Theses and Dissertations](#) database. It must be designed for a general audience with any confidential information (if required, the client's name) **removed**. It should summarize the work done, its benefits to the client, key outcomes, and the student's learning experience including lessons learnt. *See Appendix 2 on how to submit public project summary*.

6. EXPECTATIONS / PROJECT GRADING

The project is worth a total of 4 CEU/US credits.[1] It is assessed in two steps:

- **Capstone Project Writing (2 cr)**: graded on the student's initial plans, progress and professional performance, including the interim project report to be submitted by 12th May..

- **Capstone Project (2 cr)**: graded on the quality of the final project output and the student's professional performance.

The assessment is based on

- the client feedback form
- a short report on the quality of the final deliverables, the project output, and the student's professional performance written by responsible CEU faculty
- an oral final exam in front of a two-member exam committee consisting of a faculty examiner and the Capstone Project Manager
- a final exam which may include questions related to the course work of the student. The list of applicable questions is shared with students at least a month before the final exam.

The project is graded by the Program Head, based on assessments of the Client, the faculty supervisor (if applicable), the Capstone Project Manager, and the capstone exam committee.

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[1] Note that CEU uses credit numbers according to the US system. 1 CEU/US credit is equivalent to 2 ECTS credits.

7. CONTACT

- Clients: Please submit proposals on CEU Learning (Moodle); Contact Zoltan Toth (tothz@ceu.edu), or Krisztina Szarvas (szarvask@ceu.edu).
- Students: For materials and more information please visit the CEULearning (Moodle) page of the Capstone Project Writing course.

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APPENDIX 1: CAPSTONE PROJECT EXAMPLES

Sudents must participate in a complete analytics workflow. The project should include some element of statistical analysis (exploratory, predictive or casual).

Students have covered a broad mix of analytics, data science, data engineering, visualization, analytics management.

coding • data analysis • ML • visualization • architecture • big data & cloud computing • text mining • web scraping • deep learning • product analytics • data management • agile • banking IT • fintech

Project examples:

- Finding relationships between an outcome (e.g. sales, downloads, clicks) and client features

- Fraud detection on a sample dataset

- Designing a decision-support model based on data

- Developing a precision solution for agriculture

- Building a predictive model of customer behavior

- Designing a data-based smart solution for production, sales, logistics, healthcare, HR etc.
- Model building to cluster clients by behavior and discovering new ways of market segmentation

- Designing and evaluating experiments through data analysis

- Designing and evaluating a data intensive survey

APPENDIX 2: SUBMISSION OF PUBLIC PROJECT SUMMARY

The student submits this three-page essay to CEU's [Electronic Theses and Dissertations](#) database. The essay is supposed to be designed for a general audience such that confidential information, (including the client's name if required) is removed. It should summarize the work done, its benefits to the client, key outcomes, and the student's learning experience including lessons learnt. 5

Notes:

- Please consult these two sharepoint sites (accessible with your CEU credentials): [CEU Thesis Submission](#) and [CEU Thesis Formatting and ETD Submission Guidelines](#) with important information before uploading the summary.

- Please make it clear on the front page that this is a capstone public project summary.

- Please ensure that the project title is relevant, properly demonstrates the work done, and is spelled correctly without any mistakes. What you see in SITS will appear on your transcript.

- ETD only accepts bookmarked PDF files. Please follow these instructions to avoid the missing bookmarks error message when uploading:

  o The title(s) in the MS Word document should be formatted with Heading styles, then proper PDF conversion settings are needed to get the PDF bookmarked.

  o If the document has a single title, it should be set to Heading 1 style; subtitles (if any) should be set to Heading 2 style etc. (Heading 1 is normally used for chapter titles.)

  o If default Heading style font settings do not fit the requirements they can be modified. (They definitely do not fit the general CEU thesis formatting requirements.)

  o If necessary please consult [How to get a bookmarked PDF from MS Word document](#).

- When uploading the summary, please choose Economics as the department and the Master of Science stream. It is important as ETD accepts documents that are shorter than 10 pages only under this stream.

- Once you have uploaded the summary, please inform your program coordinator. They will check and move data including the project title to SITS. You will then be asked to open SITS and check your thesis data and thesis credits in the Thesis Info section. It is important that the project title in ETD and SITS are identical.

- You do not need to request rector's approval for restriction/redaction, as you are only submitting a PUBLIC summary of your project to ETD. No confidential infomation is included.