MGSC 483
Analytics-Based Community Capstone

Instructor: Juan Camilo Serpa Office: 534, Bronfman Building	Contact: juan.serpa@mcgill.ca Office hours – By appointment
Teaching Assistant: Mariapaz Pajares Burns	Contact: mariapaz.pajaresburns@mail.mcgill.ca Office hours – By appointment

1. Course Overview

MGSC 483 is an engaging learning experience that combines sustainability and analytics. This course brings together data analytics and social impact, offering students a chance to apply their skills to real-world challenges. It focuses on using data for societal benefits, rather than profit, promoting community-centered problem-solving.

Creating social good. MGSC 483 is all about using data analytics to make a positive difference in the world. Students team up with community organizations, like nonprofits and conservation groups, to solve real problems and create lasting benefits. These projects could improve local environments or help nonprofits run more effectively, showing students the real impact of their work.

Experiential learning. Students will work on projects that directly impact communities and the environment. Collaborating with nonprofits, conservation groups, and other organizations, they will tackle real challenges, ensuring the projects align with their interests and expertise for a personalized learning experience.

2. Learning Outcomes

- **Hands-On Experience.** Work on projects that deliver tangible benefits, such as improving environmental efforts or enhancing nonprofit operations.

- **Develop Analytical Solutions**. Create effective solutions in a short timeframe with minimal direction, fostering creativity and self-sufficiency.

- **Navigate Uncertainty.** Learn to handle limited project clarity, identify issues early, and seek guidance to develop feasible solutions quickly.

- **Apply Core Concepts.** Build on knowledge from core courses, applying analytics to real-life scenarios and reinforcing previously learned concepts.

- **Foster social conscience.** Cultivate a strong sense of responsibility towards community well-being, using data analytics for ethical and sustainable outcomes.

3. Community projects

Our focus will be on grasping the significance of community problems. The pedagogical foundation of this course is built on practical engagement through hands-on activities involving a real-world organization. The projects outlined in the course serve as a foundation for defining project scope. However, students are granted complete flexibility to adjust the scope as necessary, in collaboration with clients. Whether expanding or reducing scope, each project should meet:

- **Time expectation: 100 hours of output for the course.**

- **Emphasis on implementation, not complexity (read this):** The emphasis of this course is on creating solutions that are practical and easy to use, and maximize social good, rather than on showcasing fancy analytical techniques.
    - This is not the time to impress the professor with analytical prowess.
    - Students should focus on delivering solutions that their community partners can easily implement and benefit from.
    - The true measure of success will be the positive impact on the community, not the skills shown by the student in terms of advanced techniques.
    - A project with a simple solution (e.g., a spreadsheet) might get a higher grade than a fancy AI project (e.g., an image recognition software) if it provides more social value to the organization.

4. Timeline of community project

1. **Selection of clients (May 10):** Students will be presented with the available pre-selected clients, and have the choice to select their preferred client.
    a. These pre-vetted projects are designed to ensure a match between the students' skills and the client's needs.
    b. Students should focus on selecting clients that match their passions and interests in terms of social good.

2. **Introduction to clients (May 15-20):** Students will be assigned a project, based on their preferences, and engage with clients early through a structured kickoff meeting facilitated by the course coordinator to set expectations, timelines, and deliverables.

3. **Contacting clients (May 20-May 28):** Once students select their client, the instructor Administrator will make an introduction to the client and work can begin. At this point, students must complete the project or raise major roadblocks to coaches for quick resolution.

4. **Introductory sessions (May 28-30):** The project will hold two meeting times, to discuss with students the deliverables and expectations.

5. **Working towards deliverables (June 1 - July 20):** During this time, the students are expected to work for 100 hours towards the development of the project. The prof will host regular meetings with the students to coach and guide them
    a. **Statement of Work Due (June 14)**

6. **Presenting deliverable (July 20-July 25):** Each group will present to the prof the project, through a 20-minute presentation.

5. Deliverables and deadlines

Graded Item	Deadline	Description
Project Statement of Work (SOW)	June 14	Students should define scope and plan of project with given templates and provide an initial Gantt chart with plan of execution • Each section of this shortened SOW template should be within limits set in template comments ○ Additional depth can be given in appendices • Students can submit SOW's signed by client (but it is not required) ○ It is best practice to obtain a signature or email confirmation of final SOW version ○ It is strongly suggested to include a copy of your last email (in PDF form) to client regarding SOW No late submissions will be accepted, under any circumstance
Final Solution	July 20	Students should be focused on delivering an analytics solution that may include elements of the following: • Client Value Proposition or Data Driven Strategic Plan • Analytic Model/ Data mining exercise/KPI development • Data management structure/ Technology Architecture • User Experience/Interface (UX/UI) **Final Solution Submission Checklist:** 1. Slide presentation of solution 2. One-page executive summary
Handoff Files	July 20	The students should present all handoff files to the project in an organized GitHub repository. This should include, for example: 1. Read-me files 2. Codes, 3. Password files 4. Other necessary files. A heavy weight will be given to how organized these files are. Note that the client should be able to access the solution via a standalone file (e.g., a web app or a single .exe file)
Presentation	July 20-25	15-min presentation, to be scheduled in person or through Zoom
Submission of project to Data Mangrove Hub	July 25	Template will be provided.

6. Grading assessment

Grading Item	Description	Weight
Statement of Work	Student groups will create a detailed project proposal outlining their goals, methodologies, and expected outcomes.	10%
Project Planning	• Set clear goals and objectives. • Outline data collection and analysis methods. • Create a timeline with key milestones. • Define performance indicators and success metrics.	2.5%
Community Research	• Collaborate closely with community organizations. • Identify social/sustainability challenges and needs. • Align objectives with community priorities. • Ensure the project benefits the community.	2.5%
Process Mapping	• Visualize and document the project's workflow from start to finish. • Identify key tasks, responsibilities, and decision points. • Ensure clarity and alignment in project activities. • Enable efficient resource allocation and risk identification	7.5%
Deliverable: Development	Students will work closely with a social enterprise to produce a deliverable that integrate data analytics to solve a community problem	25%
Implementation value	• Develop a unique value proposition addressing social good. Focuses on social needs rather than on showcasing tech skills unnecessarily	5%
Data Modeling & Analytics	• Collect, clean, and analyze data to uncover trends, predict outcomes, etc.	5%
Technology Integration	• Implement a data engineering infrastructure to support the project. Design and deploy databases, data pipelines, and software tools for efficient data management	5%
Client-centric solution	• Focus on solutions that are centered around the client's needs. The solution has a nice interface, is professionally presented, and is easy to use for the client.	10%
Project sustainability: Handoff	• The client should not rely on the students after they leave the project. • Much of the weight will be placed on the client's ability to independently implement this project	40%
Deployment in Data Mangrove Hub	• The students will create a deployment infrastructure in the Data Mangrove Hub (datamangrove.com) that allows clients to easily access the project. • Students will be provided, in July, a form to upload the data and present their project on this hub.	*5%*
Hand-off product: Well-knitted infrastructure	• The students create a project that allows clients to access the solution and continues to use it without relying on the client. • For instance, the students should hand off a website or a single file where clients can easily open and use the solution, as opposed to a large directory of files that are not knitted together.	*15%*
Read-me file and hand-off files	• The students should provide a read-me file for (i) clients, to be able to access the project and troubleshoot independently and (ii) for future developers, to understand the code and access it. • The hand-off files should also include passwords • The code should be well commented	*15%*
Training & Change Management	• The students should hold a one-hour meeting with clients (by July 15), to hand-off the project and explain to them how to use it. The clients should continue to be responsive to questions until July 30.	*5%*
Client feedback + peer-evaluation (if applicable)	Your community organization partners will evaluate you using a predefined rubric, based on the solution and also your professionalism, responsiveness, and proactiveness.	20%
Participation & Professionalism	Active participation in discussions, workshops, and activities during the project; Encourages active engagement and collaboration, vital for successful experiential learning.	5%

7. Academic Integrity

Class Conduct

- This course minimizes traditional lecture content, encouraging students to draw upon theories and templates from previous Experiential Learning courses to enhance experiential development.
- Given the experiential nature of the course, there will be a limited traditional lecture format. Students are encouraged to apply knowledge gained from previous experiential learning courses, fostering a hands-on approach to learning.
- Students are expected to maintain a high level of professional conduct in all interactions with partner organizations, during all project-interactions.

Final Submissions

- All final submissions will be posted to the appropriate section in MyCourses unless otherwise indicated in MyCourses announcement. Any changes to final submissions will be posted on MyCourses.
- Due dates indicate latest submission times. If any student/team completes earlier, they can submit earlier.
- Discuss with your instructor regarding any unique timelines you may have.

McGill University Policies

- *Academic Integrity: McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offenses under the Code of Student Conduct and Disciplinary Procedures" (see www.mcgill.ca/students/srr/honest/ for more information).*
- *Equity, Diversity, and Inclusion Statement: As the instructor of this course, I try to provide an inclusive learning environment. I work to include topics related to equity, diversity, and inclusion in the class; to use gender-neutral language where possible; and to include diverse representation in cases and class perspectives. If you have experienced or witnessed issues related to EDI, please contact a First Responder for guidance on how to respond or contact the University Office for Mediation and Reporting (OMR).*
- *Note: The instructor feels that Desautels EDI policy is insufficient by not blanketing speciesism as a form of discriminatory behavior. In this course, any form of speciesism is equally discouraged. The equal treatment of all living species and non-human animals is a key philosophy of the instructor.*
- *McGill Preparedness Planning: In keeping with McGill's preparedness planning strategies with respect to potential pandemic or other concerns, the Administration suggests that all course outlines contain the statement: "In the event of extraordinary".*
- *Language of submission: In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.*