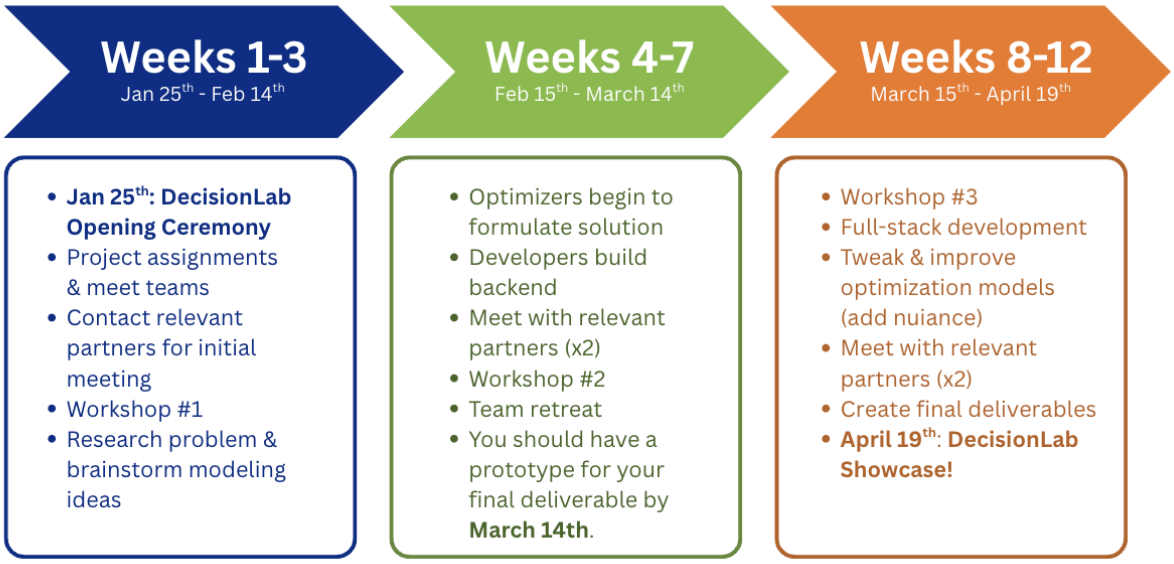
DecisionLab: Optimization for Good 2026 Handbook

Concept

A semester-long program that provides hands-on, experiential learning opportunities through Decision Science and Data Science. Students apply Optimization, Simulation, AI, Stochastic Modeling, and other quantitative methods to tackle real-world challenges in the Rice & Houston community, thereby gaining teamwork experience.

Plan

DecisionLab 2026 will run from **January 25th to mid-April**. In addition to weekly meetings, participants will devote 2–4 hours per week towards their projects. The **DecisionLab Showcase** will be held on **April 19**th, during which participants will showcase their work to faculty members, representatives of the Houston INFORMS chapter, friends, and industry professionals in Operations Research. This event provides an excellent opportunity to demonstrate progress and skills and receive valuable feedback. Below is a broad overview of milestones and checkpoints throughout the DecisionLab season:



Resources

- A strong team
    - **1 team lead**: An upperclassman OR major responsible for leading the team, checking in with Rice INFORMS, and communicating with project partners.
    - **2 optimizers**: Focus on building the mathematical model and implementing it into an optimization solver.
    - **2 developers**: Focus on building the frontend/backend for integrating the model into an application/MVP. *It's recommended that 1 developer works on the frontend and the other works on the backend.*
    - Note that you are not limited to working only on what your role entails, but you are responsible for taking the lead in your assigned area.
- **Mentorship**: Each project team will be assigned two upperclassmen mentors: an optimization mentor and a development mentor.
    - **Optimization mentors** will be your point of contact if you get stuck with problems related to your optimization/machine learning models.
    - **Development mentors** will handle concerns related to full-stack development and implementing backend/frontend components in your project. Don't be afraid to contact your mentor, but only do so if you are stuck and need guidance. Mentors will be required to check in with the team once per week, but will only meet with teams as needed.

- **Project Overviews**: Each team will receive a short 1-2-page document outlining the project. These documents will also include contact information for Partners & Mentors, recommended datasets for the project, and some ideas/tips on how you might structure your optimization model.
- **Workshops**: There will be **3 DecisionLab workshops** throughout the semester. These will be led by mentors & Rice INFORMS board members, and will cover concepts such as:
    - Constructing LPs, MILPs, and Quadratic Programs for real-world scenarios
    - Using optimization solvers, and how to choose one for your project
    - Implementing a solver into a backend
    - We will gauge interest for other concepts that project teams want us to cover throughout the semester!
- **You may use LLMs. But keep in mind that you will learn better and extract more information out of LLMs if you treat them as a collaboration tool rather than a calculator. Thus, it is highly discouraged to copy and paste all of your code from ChatGPT, Claude Code, Cursor, etc.**

Perspective

This is not a typical homework assignment with a clearly defined problem, dataset, or methods. Instead, it involves real-world scenarios in which you must understand your partner's/audience's needs and decide how best to deliver value. It's very possible you don't yet have all the skills needed—that's normal. Rice classes alone won't suffice, so we'll learn as we go. Don't be intimidated by unfamiliar concepts; stay open to acquiring new knowledge.

You are building this product for real users. Consider what those users want and how they would interact with your solution. The goal is to have real users, not just a slide deck, and to develop meaningful skills along the way. This is also a good opportunity to build a project you can reference on your personal portfolio or résumé.

Rules

Time Commitment:

1. Weekly meetings are held from 3pm-5pm on Sundays at the **Liu Idea Lab for Innovation and Entrepreneurship (COB 130)**. Weekly Sunday meetings are **required for project team members** — if you cannot make the Sunday meeting

times, please contact Beck (bae5@rice.edu) ASAP. Mentors are not required to attend Sunday meetings, but are encouraged to do so.

   a. If you are absent from in-person meetings, it may be best to step away from the team to avoid negatively affecting the project. Inactivity is like a disease that spreads quickly. Stay engaged, be positive, and show genuine interest to keep the team motivated.

   b. *Note: We will meet at a different location on February 1st due to a scheduling conflict.*

2. **Attend at least 1 of the 3 DecisionLab workshops**. Dates are currently tentative, but these workshops will likely be held during normal Sunday meeting times, so don't worry about finding extra time slots in your busy schedule.
3. **DecisionLab Showcase on April 19th.** The location is tentatively set at the **Liu Idea Lab for Innovation and Entrepreneurship (COB 130) —** same place as weekly meetings.
4. **If your project has a partner, you must communicate with your partner bi-weekly.** It is crucial that you are iterating on your project based on feedback from your "client." **Team leads are responsible for coordinating with project partners, and will send an initial email on January 25th, 2026.**

Speak Up: Don't hesitate to call out issues or offer constructive feedback when needed.

Equal Contribution: If there are n members, aim to provide roughly 1/n of the overall communication, whether in text or discussions (Scott Rixner's advice).

We're glad you're here. Wishing you a great DecisionLab 2026!