Team: 5

Project: CourseScope – Smarter Course Planning with Grade Insights

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Date: October 2025

CourseScope Requirements

**Methods**

**Data Gathering**  
I conducted structured interviews with two participants to understand how UIC students currently plan their courses, what challenges they encounter, and what tools or strategies they use. This process followed the qualitative analysis framework from Interaction Design [1].

Each interview lasted approximately 5-10 minutes and was recorded in video to transcript format. I focused on discovering users’ current behaviors, pain points, and unmet needs, rather than asking directly about potential solutions.

**Participants**

| Name | Year/ Major | Characteristics |
| --- | --- | --- |
| Billy Lam | Senior, Finance | Uses Degree Audit and advisor meetings; dislikes slow UIC systems; values workload balance and professor quality. |
| Nathan Ly | Senior, Accounting & Information Decision Sciences | Uses Audit and peer recommendations; wants better visualization of prerequisites and course organization. |

Both participants represent the target demographic of UIC undergraduate students who plan their semesters independently but rely heavily on institutional tools (Audit, Catalog, RateMyProfessor).

**Findings - Qualitative Coding**

I used grounded theory coding to extract recurring themes from both interviews. Below are the five primary codes, with supporting quotes and interpretations.

| Code (Theme) | Supporting Quotes | Interpretation / Design Implication |
| --- | --- | --- |
| 1. Dependence on Advisors and Audits | “I usually go to my advisor… they would go on the UIC audit.” – Billy  “First I look at my audit to see which courses I need to take.” – Nathan | Students rely on static, advisor-led systems. They want independence in planning and clarity on course eligibility. → Need for automated eligibility algorithm and visual progress tracking in CourseScope |
| 2. Fragmented and Clunky Interfaces | “The UI is a little bit slow. It’s very clunky.” – Billy | Existing tools like UIC’s registration site are inefficient. → Design a fast, minimal, and visual React-based interface |
| 3. Lack of Grade Distribution Data | “I can’t find any grade distribution… other than what students say.” – Billy  “Do you ever look at the grade distribution…?” – “No.” – Nathan | Students lack objective metrics to judge difficulty. → Integrate UIC Grade Distribution data with Chart.js/D3.js for interactive graphs |
| 4. Desire for Automation and Recommendation | “To automatically pre-plan all of your courses.” – Billy | Students want tools that suggest courses based on requirements and progress. → Implement auto-suggestion and prerequisite checking logic. |
| 5. Need for Better Visualization and Scheduling | “Better visualizations of prerequisites and organization of the catalog.” – Nathan  “Wish courses had more times or sections.” – Nathan | Students struggle to see course sequences and schedule fit. → Add prerequisite mapping and schedule filters in CourseScope |

**Requirements Statements**

Derived from the codes above, the following user stories represent actionable requirements for CourseScope.

1. As a UIC student, I want to automatically see which courses I am eligible to take based on completed classes so that I can plan my next semester without checking the Degree Audit manually.

* Supports CourseScope’s eligibility algorithm

1. As a student comparing courses, I want to view visualized grade distributions so that I can estimate course difficulty and workload balance.

* Uses UIC Grade Distribution API with Chart.js

1. As a busy student, I want a clean and responsive interface so that I can navigate course options quickly without lag or confusion.

* Aligns with React.js and D3.js frontend implementation

1. As a planner, I want to see prerequisite chains and future course paths visually so that I can understand which classes unlock others.

* Prerequisite visualization using dynamic chart elements

1. As a time-constrained student, I want to filter courses by available times and professors so that I can build a schedule that fits my availability.

* Adds time and instructor filters to the dashboard

**Personas**

**Persona 1: Billy, The Guided Planner**

* Age: 22
* Major: Finance
* Behavior: Relies heavily on advisors and Degree Audit for course planning; checks RateMyProfessor before finalizing.
* Goals: Wants to save time, balance workload, and avoid incorrect course recommendations.
* Pain Points: Confusing UI, slow systems, and lack of grade distribution data.
* Technology Use: Laptop for UIC portal, Google Sheets to track classes.
* CourseScope Goals: Automate class tracking and show objective grade data to reduce dependence on advisors.

**Persona 2: Nathan, The Independent Researcher**

* Age: 21
* Major: Accounting & IDS
* Behavior: Researches classes through peers and catalog; values organization and efficiency.
* Goals: Wants to clearly see prerequisites, electives, and scheduling options.
* Pain Points: Disorganized catalog, no visualization of prerequisites.
* Technology Use: Desktop browser, uses UIC audit as reference.
* CourseScope Goals: View all prerequisites visually, with filters and better layout for elective choices.

**Scenario – Idealized User Experience**

**Context**: Billy has completed his Fall semester and wants to plan for Spring 2026.

**Current Problem**: The UIC audit tells him what’s done but not what’s next, and RateMyProfessor gives inconsistent advice.

**Interaction in CourseScope:**

1. Billy logs into CourseScope and selects his major (Finance).
2. The dashboard shows a checklist of completed courses synced with his previous entries.
3. A new section lists all eligible next-semester courses, color-coded by difficulty (based on historical grade distributions).
4. Billy filters courses by “Morning Classes” and “Highest A%.”
5. He clicks on FIN 310 and sees a chart comparing grades by professor.
6. The system recommends a combination of FIN 310 and IDS 200 to balance workload.
7. He finalizes his choices, and CourseScope stores his updated progress in Firebase for next semester.

**Outcome:** Billy saves time, avoids errors, and builds a balanced schedule using one unified platform instead of three fragmented systems.

**Conclusion**

The qualitative findings from both interviews highlight consistent pain points among UIC students:

* Heavy dependence on audits and advisors.
* Fragmented systems lacking integration.
* No grade data or visual prerequisite mapping.
* Desire for automation and improved UI.

**CourseScope** directly addresses these needs by combining progress tracking, eligibility logic, and historical grade data in an interactive interface. It transforms course planning from a tedious administrative task into a data-informed, personalized experience.

**References**

[1] Arriaga, R. (n.d.). *Senior Research Scientist, School of Interactive Computing Georgia Institute of Technology*. <https://digilib.stiestekom.ac.id/assets/dokumen/ebook/feb_d2da2b2ae5541cebf7e87884e0a46b395eaff87a_1659872033.pdf>

[2] Samaranayake, S., Gunawardena, A. D. A., & Meyer, R. R. (2023). An Interactive Decision Support System for College Degree Planning. Athens Journal of Education, 10(1), 101–116. <https://doi.org/10.30958/aje.10-1-6>

[3] University of Illinois at Chicago. (2025). *UIC Grade Distribution: Explore and Search Courses*. Uicgrades.com. <https://uicgrades.com/>

[4] CourseScope Team. (2025). 422 Team 5: CourseScope Project Proposal. University of Illinois Chicago.

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