

COS333 Project: TigerPath Design Document

Project Name: TigerPath

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Overview/Requirements/Target Audiences:

Everytime course selection rolls around, students want to make sure they are making intelligent choices when it comes to picking classes. The only reminder that students are fulfilling requirements towards their intended major is through TigerHub. However, TigerHub's current page for displaying a student's completed and uncompleted requirements is not user friendly; to access requirements, students must expand many menus and click through many pages of courses to see the classes they have completed, and have yet to complete. In addition, TigerHub does not give students an easily-accessible measure of how close they are to completing their degree requirements. TigerHub's inability to provide relevant data in a meaningful, user-friendly way to Princeton students is crucial during course selection time when students *need* this data to make class choices.

TigerPath will provide a user-friendly interface to Princeton students in which they can view their degree progress and create four-year plans in order to maximize their academic opportunities at Princeton. In order to plan more than a semester ahead, TigerPath will display which semesters in the past certain classes were offered, so students can deduce whether the class will be offered in a certain semester in the future based on previous patterns.

If time allows, TigerPath will also have features to track certificate progress and distribution requirement progress. Because many students take courses abroad or during the summer, we will have a sidebar that will allow you to add your own classes, and pick which requirement they filled. We also hope to add a feature where students of a certain major can view the four-year plans of other students in their same major in order to see how other students fulfill requirements, and thus, get a better idea of how they can fulfill certain requirements. Within this feature, we would also add a simple "thumbs up" or "thumbs down" course-rating feature that goes along with the schedule-sharing so that students can see if a certain combination of classes worked or did not work for other students.

Functionality:

Student A: Study Abroad COS Major

Student A is a rising junior B.S.E. Computer Science Major who would really like to study abroad in Australia her junior spring. However, Student A knows that she would really like to take COS 375: Computer Architecture and Organization as one of her "Systems" requirements for her major, but

sees that COS 306: Introduction to Logic Design is a prerequisite for that course. Student A is a little worried, because she is not sure if she can take both of these classes, and study abroad; if one of the classes is a spring-only class, she will not be able to complete her requirement the way she wants. However, she looks on “course history” in TigerPath and sees that both courses are fall-only courses. Student A is relieved because she realizes she can take COS 306 her junior fall, and COS 375 her senior fall! With a user-friendly four-year plan template at hand, Student A can easily plan when she should take COS 306 in order to take COS 375 before she graduates, while still being able study abroad her junior fall. In addition, when she logs onto TigerPath, Student A can now see that if she follows her plan, she will have completed the “Systems” requirement for her degree by her senior fall. In addition, when she returns from completing four humanities-related classes abroad, she can check the “study abroad” box on her junior spring semester, and manually enter 4 credits to her credit total.

Student B: Stressed MAE Major

Student B is having a very stressful freshman spring semester. An email goes out to all undergraduate students at the beginning of April noting that course selection is in twenty days. Student B hears that he needs to take MAE 305: Mathematics in Engineering I sometime during his sophomore year, but does not think that he will have room in his schedule in his sophomore fall to take it! Student B heard a rumor that MAE 305 is a fall-only course, so considers frantically emailing everyone in the MAE department to see if there is a possibility he can take it in the spring. However, Student B first logs onto TigerPath and sees that MAE 305 has been offered every semester for the past four years (in both the fall *and* spring). Student B feels better because he realizes he can take MAE 305 next spring! Just so he does not forget, Student B puts MAE 305 in one of his “sophomore spring” slots on TigerPath.

Student C: Indecisive Psych Major

Student C is a sophomore who originally thought she would be a PSY major. However, after taking PSY 258/NEU 201: Fundamentals of Neuroscience, she decided she liked the biological side of the human brain more, and thus, decided to switch her major to Neuroscience. Student C was originally stressed by this decision, because she felt that she wasted 2 of her 32 classes at Princeton (PSY 258/NEU 201: Fundamentals of Neuroscience and PSY/NEU 338: Animal Learning) on PSY-related classes. However, once Student C changes her declared major from PSY to NEU on TigerPath, she sees that these two courses *also* count towards her NEU major requirements! With the added functionality of certificate programs, she also learns of the Statistics and Machine Learning program where she would only need to take three more classes to satisfy the requirements!

Design:

Front-End: Bootstrap and jQuery

Will allow user to enter/save personal data, create a personalized profile, etc.

Back-End: Business logic: Django/Database: MySQL

Will store all course data (used for picking/entering classes in the four year plans)

Will store major requirement data (used for visualization of degree progress)

Source Control: Github

Version control and collaborative code editing

Timeline:

March 15

Design Document Due

March 21

Project Website Online

Storyboard planned and sketched out (App UI flow)

Database populated with course data (data related to COS and other Engineering majors should be close to “perfectly” formatted).

March 28

Prototype - We will have the backend and frontend “talking” to each other, even if it’s not 100% correct. We will have data for the COS B.S.E. major formatted in database correctly, and have general idea of front-end laid out as an interactive web app. (**key points:** database connected to app, app displaying data)

April 4

We will have the app fully working with the COS B.S.E. major. This means that any situation a COS student might be in is covered (i.e. studied abroad during a semester, took a summer class, did not take COS 126, etc.) is covered at this stage in the game.

April 11

We will have the app fully working with all of the Engineering Majors. In addition, we will add a feature for certificates.

April 18

Alpha Version - We will have the app working with all majors. We will have both pages working and talking to each other (the four year plan page and the requirements page should have the same courses highlighted). The front-end should be completed at this point, and it should look similar to the the way we want it to look in our final version. The certificate feature will be fully working. We will start to add the feature for the distribution requirements.

April 25

Beta Version - At this point, users will be able to track their major, certificate, and distribution requirement progress. A feature will be added where you can check a box above a semester to explicitly indicate that this was a “study abroad” semester. At this point, we will be working to add the schedule-sharing feature as a finishing touch.

May 2

Demo!

May 10

Dean’s Date - Final Version/Document Submission

Risks and Outcomes:

- There are many majors with a lot of obscure requirements, and therefore there are a lot of corner cases we need to be aware of. However, we are planning on starting with a small number of majors, and building up from there. We are planning on making the app fully functional with the COS B.S.E. major first, then expanding to all six majors in the Engineering School, then expanding to humanities majors. We feel this will allow us to focus on the core functionality before focusing on the intricacies of A.B. major requirements.
- This limitation goes along with requirements; many students complete requirements at other universities either while studying abroad, taking a summer class, taking a Princeton seminar, or the summer before their freshman year in FSI. Therefore, not only do we need to study the intricacies of each major, but also need to study the intricacies of University policy regarding course credit.
- If we decide to add a module where people's schedules can be viewed by underclassmen in that major, privacy violations might come into play. When a user logs into the app the first time, we would need to ask them if they would like their contact/personal information displayed if/when their schedule is shared (or make an executive decision about that altogether).
- None of us have built a web app before, so all five of us will be learning most of this stuff for the first time, so we might underestimate or overestimate how much time learning a language will take.

Project status website can be found at: <http://tigerpath.github.io/index.html>