



Careers in Transportation

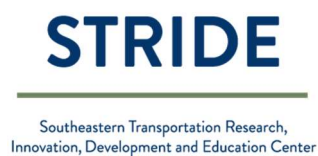
A new course to inspire and engage the next generation of transportation professionals



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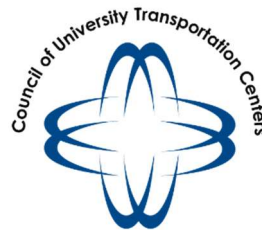
University of Florida Transportation Institute
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Executive Summary

The transportation sector is projected to experience workforce shortages. To address this crucial need, the University of Florida Transportation Institute (UFTI) developed and piloted the **Careers in Transportation** course, a semester-long course for undergraduate and graduate students. The course was piloted at the University of Florida for academic credit and made available online for a Certificate of Completion to students nationwide with an emphasis on those attending universities in the Council of University Transportation Centers (CUTC) network.

The course had four primary goals to encourage more young adults to choose transportation as their career path:

- 1) **Interest:** Increase students' interest in transportation careers.
- 2) **Self-Efficacy:** Increase students' self-efficacy. (Students view themselves as capable of a career in transportation.)
- 3) **Choice:** Increase students' perception that a career in transportation is a viable option for them. (There are opportunities and there are few barriers to this choice.)
- 4) **Action/Performance:** Engage students in personal actions related to exploring and pursuing a career in transportation.

An IRB-approved pre- and post-survey was implemented to measure how the course succeeded in each of these goals.

The Careers in Transportation course introduced students to the transportation sector through 14 classes held online and was composed of three main elements: 1) presentations from transportation professionals, 2) assignments related to critical transportation issues, and 3) activities to develop career skills. This report provides a detailed template for replicating the course at other CUTC member institutions both in credit and non-credit formats. Institutions can also choose to implement this as a separate course or use portions of the template to incorporate into existing courses at their institutions.

Based on survey results and student feedback, the course achieved many of its goals and was well received. Four recommendations for improving the course were compiled from student evaluations and the instructor's experience.

I. Introduction

Transportation touches on every aspect of our life whether we see it or not. Transportation is related to all the grand challenges of our era from safety and equity to climate change and cybersecurity. Those that work in transportation come from a wide range of professions including engineering, planning, psychology, communication, programming, and logistics. No matter what an individual's interest or skills, there is likely a career in transportation for them.

Despite the pervasiveness of transportation careers and opportunities, we have heard for more than a decade now that the transportation field has been facing a labor shortage. To ensure critical existing and newly emerging transportation jobs are filled, today's young adults need to be aware of and inspired to pursue potential professional opportunities in the field. Students must also be able to envision themselves in these potential career paths and feel confident in their ability to pursue this career path.

To address this crucial need, the University of Florida Transportation Institute developed the **Careers in Transportation** course, a semester-long course for undergraduate and graduate students. The course was piloted at the University of Florida and made available online to students nationwide with emphasis on those at universities in the Council of University Transportation Centers (CUTC) network. The course, based on the principles of the Social Cognitive Career Theory (Lent, Brown & Hackett, 1994), was designed to encourage more young adults to choose transportation as their career path.

The Careers in Transportation course introduced students to the transportation sector through 14 classes held online and was composed of three main elements: 1) presentations from transportation professionals, 2) assignments related to critical transportation issues, and 3) activities to develop career skills.

Each week two to three professionals presented to students about a different field of transportation and the career paths within it. Thirty-seven speakers were invited to present on a wide range of fields and sectors. Speakers were invited from University Transportation Centers (UTCs), public and private agencies, and other transportation organizations from around the country including Dallas Ft. Worth International Airport, North Carolina DOT, Transportation for America, HDR, National Renewable Energy Laboratory, Mobility 21 at Carnegie Mellon University, Benesch, U.S. Army Corps of Engineers, Western Transportation Institute at Montana State University, Caltrans, Kittleson, City of St. Petersburg, FL, USDOT, and more.

Students learned about critical transportation topics through readings, podcasts, and videos as well as hands-on activities and online discussions. Topics that were covered included sustainability, advocacy and policy, transportation planning, big data and artificial intelligence, innovative transportation technologies, public engagement, wildlife, economics, equity, accessibility, and public transit.

Career development skills were honed through three assignments: an elevator pitch, a career planning exercise, and a professional profile project. In addition to the assignments, students were provided with resources on internships through the [Resources webpage](#) and one class was devoted to presentations from recent graduates who talked about their internship and job search processes.

The next chapter (II. Tasks and Deliverables) outlines the broad tasks completed to develop and pilot the course. Chapters III and IV detail the specific steps of designing and implementing the course. Chapter V details the results of the pre- and post- survey and Chapter VI provides evaluation feedback on the overall course. Chapter VII discusses how the CUTC network was engaged and opportunities for moving forward and Chapter IX provides recommendations for future replication of the course. Course

materials including the syllabus, speaker outline, class assignments, and the IRB approved survey are provided in the Appendices.

II. Tasks and Deliverables

To develop and pilot this new course, the following tasks were completed (Table 1: Project Schedule provides the project schedule by task):

Task 1: Course Design and Approval (Chapter III)

A 14-week course was developed that focused on a different transportation topic each week such as transportation planning, public engagement, sustainability, big data, and innovative technology (Appendix A: Syllabus). A weekly synchronous online session included at least two professionals who spoke for approximately 20 minutes about their career path followed by a question-and-answer session. Speakers represented a diversity of sectors including public, private, non-profit, and academic. Weekly assignments included readings, videos, and podcasts as well as online, asynchronous discussions and activities related to transportation topics. Students completed three activities focused on career development (Appendix C: Class Assignments).

The project managers met with Dr. Robert Thieke, the Department Head and Undergraduate Coordinator for the Engineering School of Sustainable Infrastructure and Environment (ESSIE) to discuss the new course. The Careers in Transportation course was officially approved and was listed on the University of Florida schedule of courses for the Fall 2022 semester (CGN4905 - Special Problems in Civil Engineering: Careers in Transportation Sem).

Task 2: Schedule Course Speakers & Develop Course Activities (Chapter III)

Thirty-seven speakers were confirmed for the course (Appendix A: Syllabus). A template for the presentations was developed and provided to each speaker (Appendix B: Speaker Outline and Tips). In addition, the program managers held a 30-minute Zoom meeting with each speaker to discuss the goals of the course and their presentation.

Task 3: Develop Pre-Survey and Post-Survey to Measure Goal Impacts (Chapter V)

A pre- and post-survey was developed to align with the goals of the course and the Social Cognitive Career Theory (Appendix E: IRB Approved Pre/Post Survey). The survey was approved by the UF IRB office and implemented using Qualtrics. All responses were voluntary and anonymous.

Task 4: Advertising of Course (Chapter III)

A 30-second [video](#) was developed to advertise the newly developed course. This video and an informational email were sent to advisors and departments throughout the university and to the CUTC network (Appendix F: Emails sent to CUTC Members). Follow-up reminder emails were sent to all contacts multiple times and included the syllabus and schedule with speakers. Recruitment information was sent multiple times to the CUTC listserve and also to the STRIDE Center partners to encourage participation of students in the CUTC network.

Task 5: Develop Online Resource Materials (Chapter IV)

A publicly available, online resource [webpage](#) was developed which includes links to internships and jobs, academic opportunities, UF Career Connections Center resources, newsletters about transportation, professional organizations, conferences, and other opportunities (Appendix D: Resource Webpage).

Task 6: Implement Course (Fall 2022) (Chapter III)

The course was successfully implemented during the Fall 2022 semester.

Task 7: Post-Survey and Evaluation (Chapter V and VI)

Survey results are provided in this report along with additional evaluation feedback.

Task 8: Creation of Career Videos (Chapter IV)

All students participating in the course for credit, or to receive a certificate of completion, completed an informational interview with a professional of their choice and produced a video presentation summarizing what they learned. Videos were not shared publicly due to privacy concerns.

Table 1: Project Schedule

Month of Contract	1	2	3	4	5	6	7	8	9	10	11	12
Task 1												
Task 2												
Task 3												
Task 4												
Task 5												
Task 6												
Task 7												
Task 8												

The project resulted in the following deliverables which are described in the remainder of the report:

1. A campaign model based on the Social Cognitive Career Theory (Lent, Brown & Hackett, 1994), provided in Chapter III
2. Survey and results with recommendations, provided in Chapter V
3. Website with resources (internships, career resources, links to professional organizations, videos, etc.), provided in Chapter IV
4. Short videos featuring transportation careers. (Videos were not shared publicly due to privacy concerns.)
5. Presentation at either winter or summer CUTC meeting. (Slides will be provided at the summer 2023 meeting).

III. Course Model

This chapter provides an overview of how the course was designed and how students were recruited for the pilot of the course.

Theoretical Framework

The course was developed based on the principles of the Social Cognitive Career Theory (Lent, Brown & Hackett, 1994), to encourage more young adults to choose transportation for their career path. The Social Cognitive Career Theory (SCCT) provides a framework for how individuals choose career paths. SCCT is built on the Social Cognitive Theory by Albert Bandura (1977) which posits that individuals’ behaviors are premised on their self-efficacy—their belief in their ability to accomplish something. Bandura identifies four factors that can improve self-efficacy including 1) the individual mastering simple to complex tasks (performance experiences), 2) having social models (observational learning), 3) enthusiasm (emotional arousal), and 4) encouraging the individual to achieve the task (verbal persuasion). Lent, Brown & Hackett applied this approach to how individuals select a career path

through the SCCT which identifies three critical elements: 1) development of interest, 2) making a choice, and 3) performance and success.

In addition to the SCCT, the course draws upon the field of Public Interest Communication which emphasizes that asking people to take an action that they feel confident about and incorporating that action into their daily routine, will lead to long-term change (Christiano and Neimand, 2018). These calls to action are an important part of supporting and reaffirming elements of the SCCT.

As such, the course was developed around four goals:

- 1) **Interest:** Increase students' interest in transportation careers.
- 2) **Self-Efficacy:** Increase students' self-efficacy. (Students view themselves as capable of a career in transportation.)
- 3) **Choice:** Increase students' perception that a career in transportation is a viable option for them. (There are opportunities and there are few barriers to this choice.)
- 4) **Action/Performance:** Engage students in personal actions related to exploring and pursuing a career in transportation.

Syllabus

The syllabus was developed for a 14-week course to be implemented during the fall 2022 semester. Each week highlighted a different topic in transportation, as shown in Appendix A: Syllabus. The course incorporated three main elements: 1) inspiring presentations from transportation professionals in a wide range of fields, 2) engaging materials and activities to expose and connect students with critical transportation issues and topics, and 3) hands-on activities to sharpen career development skills.

Transportation Professionals

Each week, a minimum of two speakers were scheduled with at least half of the speakers having training in engineering and the other half with training in other disciplines. The instructors met with speakers beforehand to provide background on the course objectives and review an outline of the scheduled presentation (Appendix B: Speaker Outline and Tips). Each speaker was given 20 minutes for their presentation (which was recorded for students who could not attend the live session). This was followed by a question-and-answer session which was not recorded. Thirty-seven speakers were invited to present. Speakers represented a wide range of fields and sectors including Dallas Ft. Worth International Airport, North Carolina DOT, Transportation for America, HDR, National Renewable Energy Laboratory, Mobility 21 at Carnegie Mellon University, Benesch, U.S. Army Corps of Engineers, Western Transportation Institute at Montana State University, Caltrans, Kittleson, City of St. Petersburg, FL, USDOT, and more. A full list of speakers can be found in the syllabus (Appendix A: Syllabus).

Transportation Issues

In addition to the presentations, students explored each transportation topic through weekly assignments that included videos, podcasts, and readings on the topic as well as online discussion posts and activities challenging them to consider how they experience each transportation issue in their own life (Appendix C: Class Assignments). Topics that were covered included sustainability, advocacy and policy, transportation planning, big data and artificial intelligence, innovative transportation technologies, public engagement, wildlife, economics, equity, accessibility, and public transit. Examples of activities included redesigning a street using complete streets principles, a video recording and analysis of accessibility features in a location of their choice, a car-free route planning activity, and reflections on personal experiences with transportation.

Career Development

Students completed three assignments related to their personal career development: an elevator pitch, an Odyssey Plan, and a Professional Profile. These hands-on activities were designed to guide students through internship- and job-seeking steps to develop their professional skills in a low-stakes environment.

- **Elevator Pitch:** Students developed a short elevator pitch using a guide sheet from the UF Career Connections Center. Students were then asked to practice their elevator pitch with professionals either in-person or remotely. Students at UF were encouraged to attend the UF Career Fair that was happening the week of the assignment. Students also posted a recording of their pitch in the online classroom forum and provided feedback to each other and self-reflections on their experience creating and practicing their elevator pitches.
- **Odyssey Plan:** Based on the book *Designing Your Life: How to Build a Well-Lived Joyful Life* by Bill Burnett and Dave Evans, the Odyssey Plan activity encourages students to use a design thinking approach to their career and life path. Using worksheets adapted from the book by the UF Career Connections Center, students completed a first draft of their Odyssey Plan at the beginning of the course and again at the end of the course. Students then reflected on how their plans may have changed over the course of the semester.
- **Professional Profile:** Students identified a transportation professional of their choice to conduct an informational interview with. If students did not have a professional in mind, the instructor provided potential contacts for them to reach out to. Using a guide provided by the UF Career Connections Center, students conducted a 20-30 minute online informational interview with a professional and then summarized what they learned in a short 2-minute presentation to the class.

In addition to the assignments, students were provided with resources on internships through the [Resources webpage](#) and one class period was devoted to presentations from four recent graduates who talked about their internship and job search processes.

Pilot: Student Participation

The semester-long course was available in three formats to provide flexibility and encourage wider participation: 1) participants registered for the course at the University of Florida received one academic credit (available only to UF students), 2) participants completed all of the requirements for a certificate of completion from the University of Florida Transportation Institute (no cost), and 3) participants attended one or more talks based on their interest for free but did not receive anything in return. Requirements for the certificate of completion included participation in at least 5 classes, the completion of an Odyssey Plan, and the Professional Profile project.

UF developed a 30-second [promotional video](#) to recruit students for the class as well as an informational email. These were sent to several departments throughout UF to encourage students from a wide range of disciplines to participate. The video and email were also sent multiple times to the CUTC listserve as well as the 9 STRIDE partners to encourage broad participation. Eleven UF students initially registered for the course. Due to attrition during drop/add period, seven students completed the course. In addition, 58 individuals, comprised predominately of graduate students and professionals, expressed interest in participating in the course for a certificate of completion. Seven students participated in five or more classes and five students completed all of the requirements for the certificate. These seven students came from Florida Atlantic University, the University of Alabama at Birmingham (3), the University of Delaware, and Tulane University. Table 2 provides an overview of the students who

completed the course for academic credit (UF students) and those students who participated in more than five classes (non-UF).

Table 2: Overview of Student Status and Course Completion

	UF	non-UF
Undergraduate freshman	1	
Undergraduate sophomore	3	1
Undergraduate junior	2	
Undergraduate senior	1	
Graduate MS student		6
Subtotal	7	7
TOTAL	14	

IV. Web Resources & Videos

Throughout the course, career development resources were added to a public [Resources webpage](#). Screenshots of the webpage are provided in Appendix D: Resource Webpage. The page includes links to internships and jobs, academic opportunities, UF Career Connections Center resources, newsletters about transportation, professional organizations, conferences, and other opportunities. Speakers were asked to provide links to opportunities with their employer or other resources they felt would be useful. Links to the weekly recorded presentations (for speakers who provided permission) were shared with all those who expressed interest in the course, including the 58 individuals who completed an interest form. Students also completed short videos summarizing their informational interviews with professionals as part of the required assignments and these were shared with the class. Videos were not made public on YouTube due to expressed concerns about privacy.

V. Survey Results

The project developed and implemented two surveys: one at the beginning of the course and one at the end of the course. These were identical with the exception of a few questions (Appendix E: IRB Approved Pre/Post Survey). The survey measured the four goals the course was designed around:

- 1) **Interest:** Increase students' interest in transportation careers.
- 2) **Self-Efficacy:** Increase students' self-efficacy. (Students view themselves as capable of a career in transportation.)
- 3) **Choice:** Increase students' perception that a career in transportation is a viable option for them. (There are opportunities and there are few barriers to this choice.)
- 4) **Action/Performance:** Engage students in personal actions related to exploring and pursuing a career in transportation.

Questions were adapted from similar surveys based on the Social Cognitive Career Theory and were written with a focus on the transportation profession and the specific career development activities that the course included.

The survey was IRB-approved and was implemented online using Qualtrics both before and after students attended the class (Appendix E: IRB Approved Pre/Post Survey). Only completed surveys were included in the analysis and only undergraduate and masters' students' responses were included. Eighteen completed responses were collected in the pre-survey and nine completed responses were collected in the post-survey. Responses were collected from both UF students who were registered for

1-credit and non-UF students who participated in the course for a certificate of completion. Pre-surveys were distributed to all registered UF students and all non-UF individuals expressing interest in participating in the course. The post-survey was distributed to all registered UF students and to the non-UF students who participated in a minimum of 5 classes.

Responses from UF students and non-UF students were combined for analysis. Table 3 summarizes the academic levels of students who completed the survey and whether they were from UF (registered) or other institutions (certificate). Students were not required to complete the survey for credit or the certificate of completion. Participation was optional and anonymous. The pre-survey responses include some responses from students who ultimately did not participate in the course (either for credit or certificate of completion) which likely impacts the comparison of pre- and post-results. While there were not enough data points to show statistically significant results, graphs showing a comparison of means from pre- and post-surveys reveals some important insights. The following paragraphs discuss the survey results for each of the four goals presented earlier.

Table 3: Survey Responses

	Pre-Surveys Completed		Post-Surveys Completed	
	UF	non-UF	UF	non-UF
Undergraduate freshman	5	1	2	
Undergraduate sophomore	1	1	1	1
Undergraduate junior	1	1	1	
Undergraduate senior	0	0		
Graduate MS student	0	8		4
Subtotal	7	11	4	5
TOTAL	18		9	

Interest

Survey Question: *How interested are you in pursuing a career related to...*

As shown in Figure 1, the comparison of means reveals some changes in the interest level of students. In some cases, interest level appears to have dropped (data science/analysis, artificial intelligence, engineering, and computer science). In other cases, the interest level increased (advocacy, policy, climate change/environment, planning, communication & public engagement, human behavior). It is possible that some of this change in interest was due to the topics speakers presented on. For example, several speakers worked on some aspect of transportation planning, but there were not as many speakers who spoke specifically about data science, AI, or computer science.

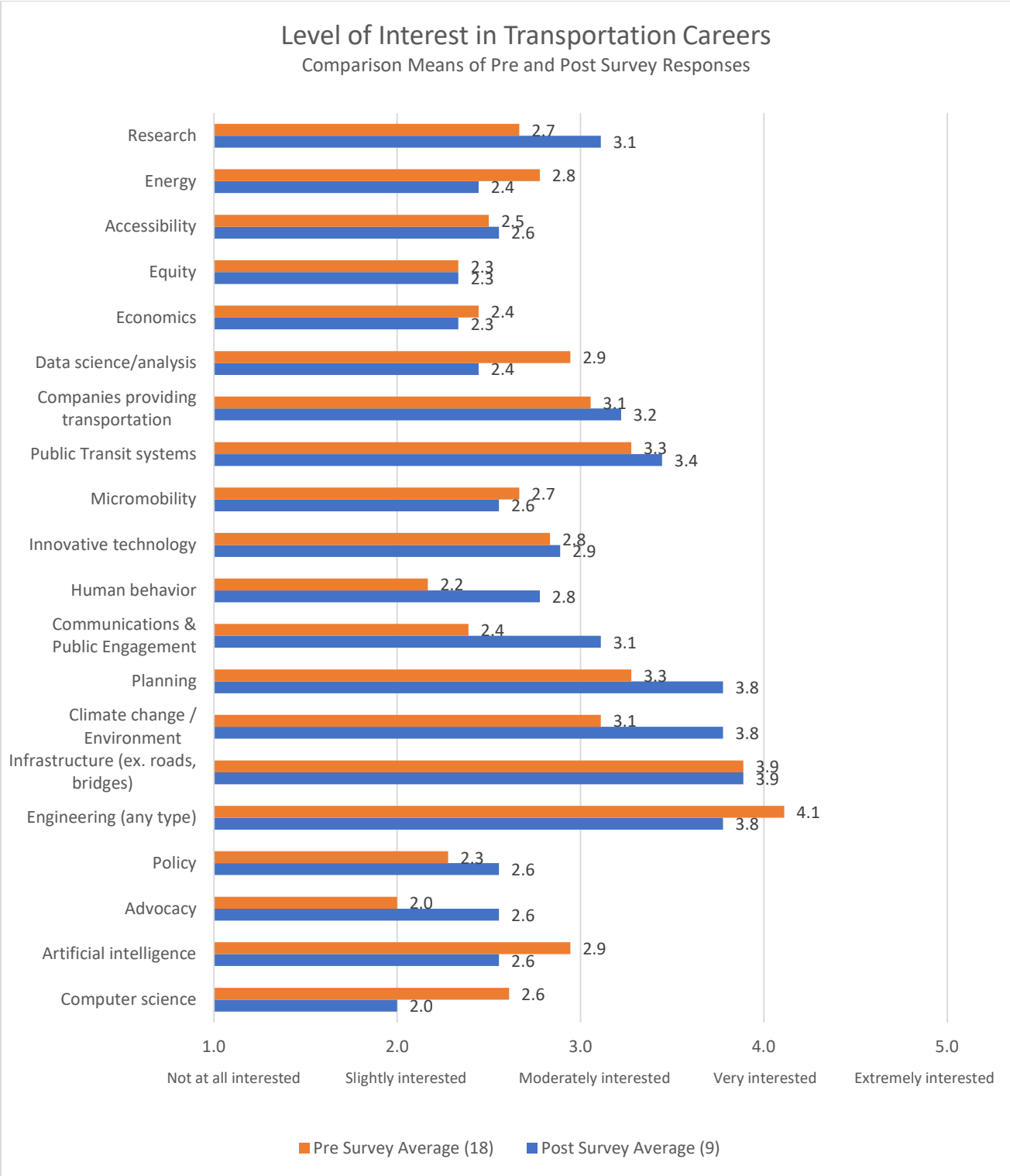


Figure 1: Level of Interest in Transportation Careers

Self-Efficacy

Survey Question: *How would you rate your confidence in your ability to...*

As shown in Figure 2, student confidence levels increased in all areas. The area of greatest increase was “Identify the steps needed to pursue a career path or job you are interested in” with a 0.9 point increase. There was a 0.7 point increase for “Conduct an informational interview.” The overall increase

in confidence levels indicates that the activities students completed during the course were beneficial. As discussed earlier, students were asked to write and practice an elevator speech and conduct an informational interview. Having the opportunity to not only learn about, but practice skills is an important step in building confidence.

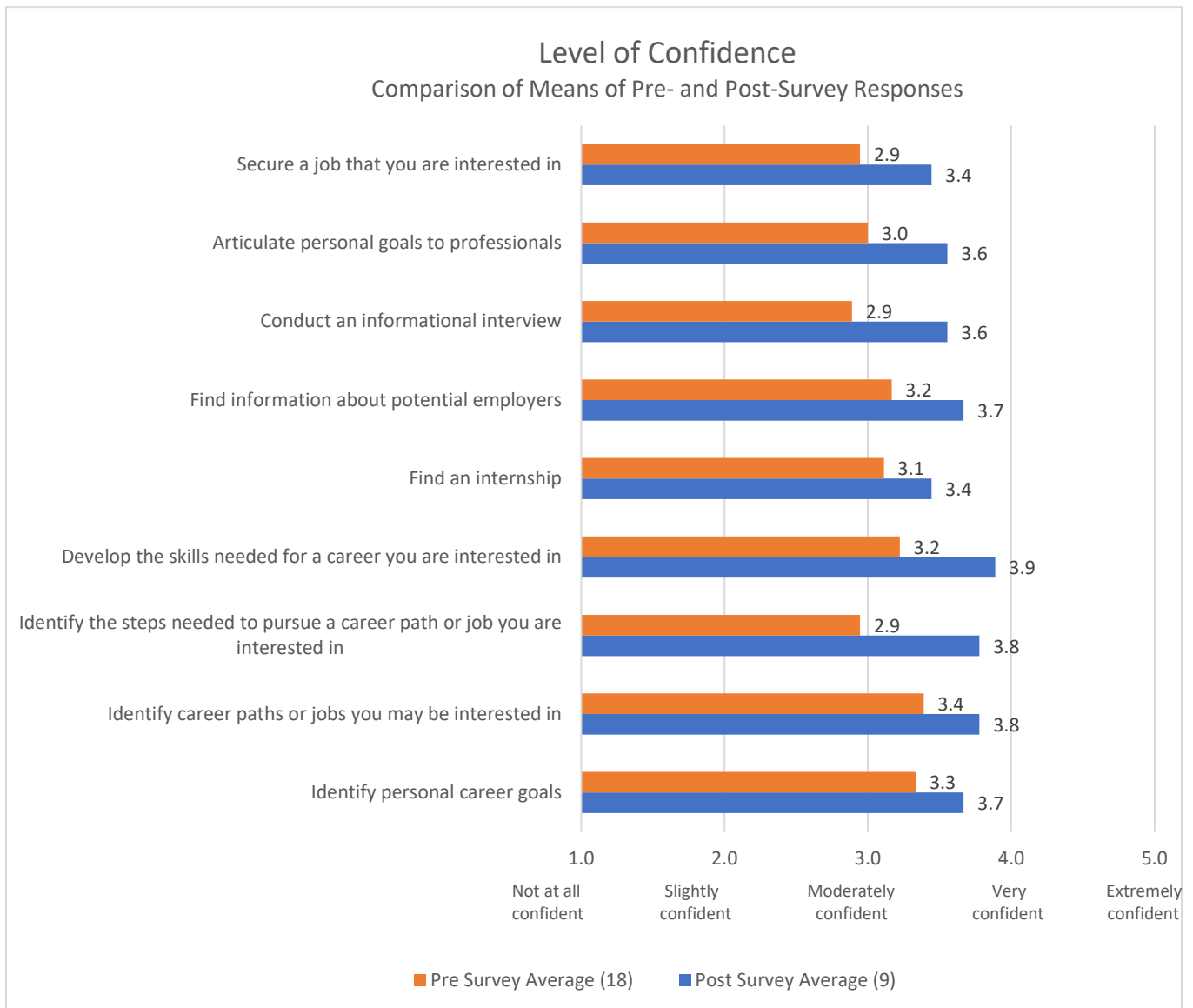


Figure 2: Level of Confidence

Students at UF were asked to participate in a multi-day Career Fair to practice their elevator speech. Unfortunately, a portion of the Career Fair was cancelled because of closures due to a hurricane. Students who were unable to attend the career fair or who were not at UF were asked to practice the elevator speech with a friend or colleague. Students were able to share their elevator speech with classmates and asked to provide positive and constructive feedback. Examples of feedback received by the students in the class discussion include the following:

- “Using the pitch was a lot less intimidating than I imagined. The professionals that were at the career event were very friendly and open to conversation. One person I spoke to was [name]. I learned that the employers become more engaged when you refer to one of the projects the company has completed. I felt that the companies were excited about hiring new people and

are actively looking for people who are interested in their company, which made the experience less stressful. I wish I had printed more resumes and spoke to more employers to increase my chances of attaining an internship.”

- “While I wasn't able to attend the career fair, I did test it out with a friend. It was a hot mess as I have very little experience in what I want to do, and this is my first elevator pitch. The only thing that really went well is that I’m eager to get into roadway design. My friend taught me a lot about what employers are looking for and ways I can improve my pitch for when I actually attend a career fair. I can improve upon it in the future by gaining some more experience to appeal to potential employers.”
- “I used my elevator pitch on [name]. When practicing using my elevator pitch at the career showcase, it felt more natural to talk about the contents of the pitch as questions came up, instead of saying it in one go. This year I just used the career showcase to ask professionals what they look for in candidates and good ways to build a resume. I hope that by next year I will know what kind of internship I would like to have in order to advance my skills.”
- “I spoke to [name]. I think my pitch was a bit too short and left a lot to be desired. It opened too many questions rather than providing any guiding storylines. It went really well though, it conveyed my interest and my previous experience rather succinctly, allowing for me to help steer the conversation and create a narrative that conveys me in the light possible. I was trying it to network mostly as I currently have an internship.”

Post-Survey Question Only: *The following class activities have improved my ability to prepare for a future career...*

This question was only asked in the post-survey because it related directly to activities that were completed during the course. As shown in Figure 3, overall, students agreed that the class activities helped improve their ability to prepare for a future career. The most strongly rated activity was the selection of readings, videos, and podcasts. This was followed by interactive assignments, the resource page, the informational interview, and the professional profile project.

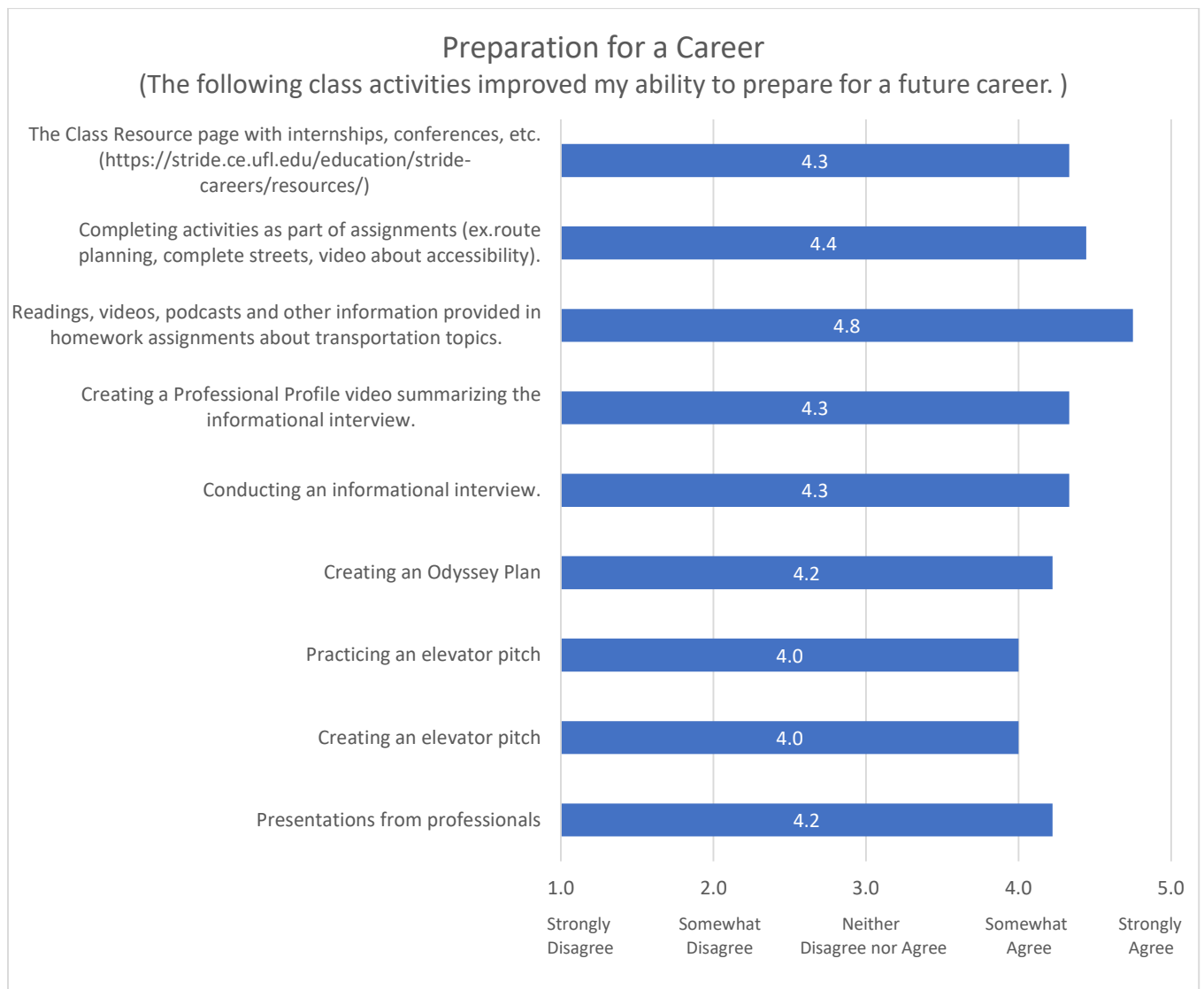


Figure 3: Preparation for a Career

Choice

Survey Question: *Please indicate how you feel about the following statements...*

The concept of “choice” in the Social Cognitive Career Theory relates to how students perceive the viability of a career. This is often measured by their perception of whether they can see themselves in the career, if they receive support from their community (peers, family, etc.), and if they believe the career will provide the types of opportunities they are looking for (ex. salary, purpose, environment). Responses (Figure 4) indicate that students’ perception of a transportation career choice improved in all cases except for “I have received encouragement from peers to pursue a career in transportation.” Peers could include classmates or peers outside of class. Levels of agreement increased most with “My social network would support me pursuing a career in transportation (0.8 point increase) and “I have role models in the transportation field” (0.7 point increase). Future implementation of the course could improve the peer encouragement component by fostering more interactions between students in the class.

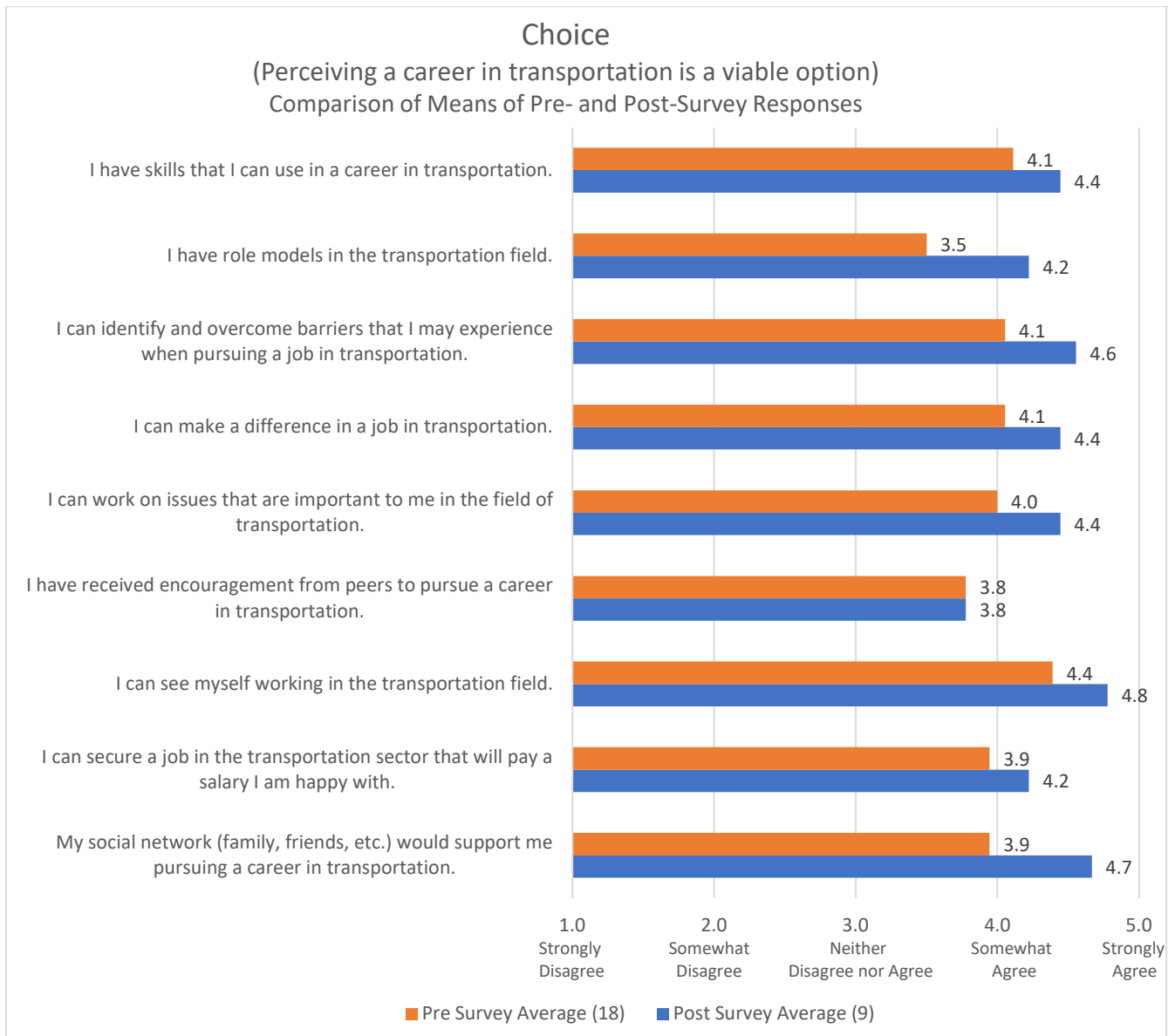


Figure 4: Choice

Action/Performance

Survey Question: *How unlikely or likely is it that you will do the following after this class...*

A key component of the course was to inspire students to take action both during and after the class. While the survey does not measure long-term action and behavior change, it seeks to measure a likelihood of action. Responses (Figure 5) indicate that students' likelihood of taking action increased for all items. Students expressed an increased likelihood that they would "Attend a talk or webinar about a transportation career" (0.7 point increase) or "Take a class, certificate or other training on a transportation topic" (0.6 point increase). These responses indicate that providing additional information on resources and opportunities after the course would likely be desirable for students.

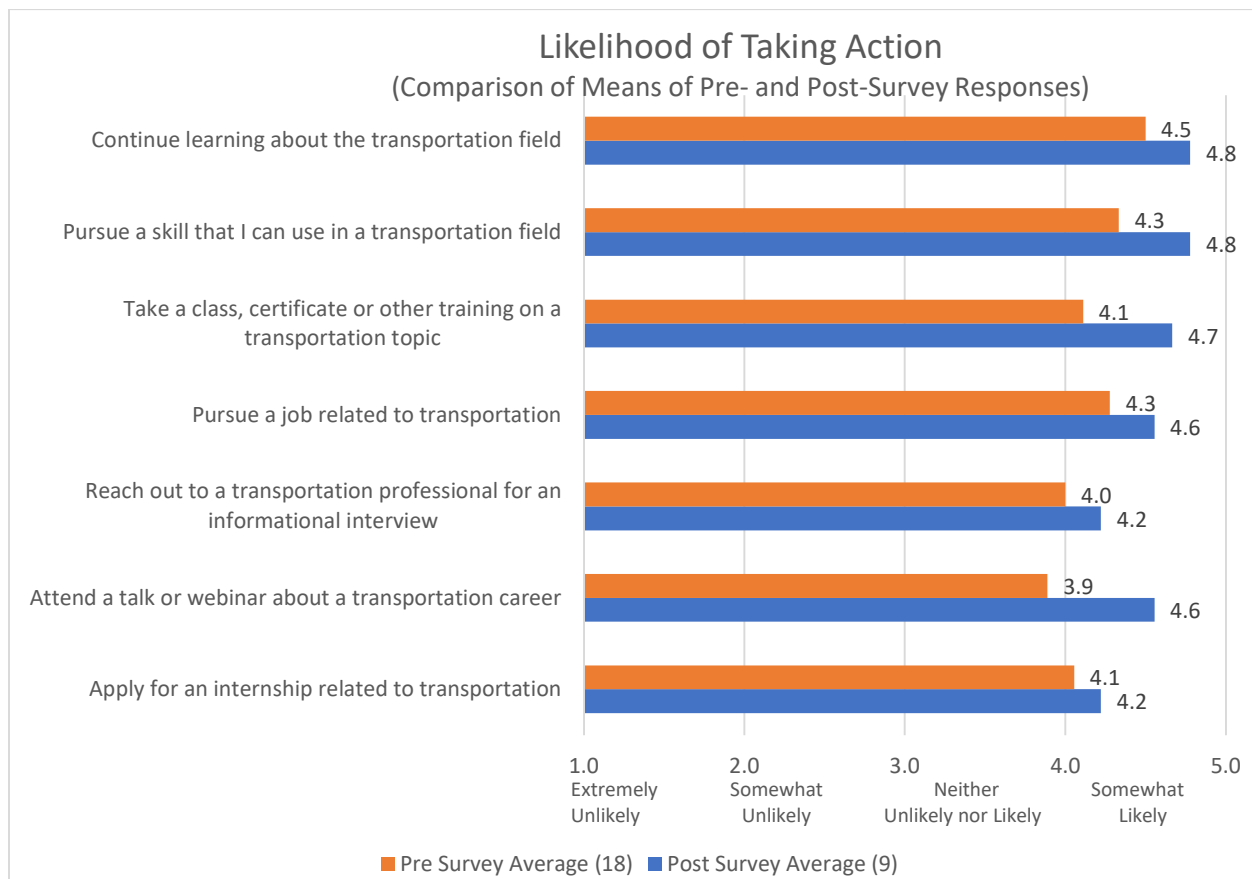


Figure 5: Likelihood of Taking Action

Post-Survey Question Only: *Please describe how your confidence and interest in pursuing a transportation career have changed as a result of this class?* (Open Ended)

- “I really enjoy taking this class. Thank you guys for organizing everything for us!”
- “After completing this course, I have become confident in making backup career plans and also have become confident in how I can contribute to the transportation sector.”
- “This class provided the opportunity to learn more about the transportation field, and the steps needed to attain the occupation that fits your ultimate goal! I am currently a research assistant, and this class allowed me to be exposed to different sides of the industry, and to propel me into planning for my future.”
- “My curiosity and appreciation of the importance transportation will play in combating climate change and improving the quality of lives has been strengthened. Learning about so many of the different roles within the sector was a major benefit to my understanding of how it all connects.”
- “Not at all since I already really wanted to go into transportation.”
- “Improved significantly for the better”

Post-Survey Question Only: *Thank you for completing this survey and participating in our course this semester. Please provide any recommendations or additional feedback.* (Open Ended)

- “More technical sessions should be included in the course.”

- “This was a great class! It was well planned and organized. The speakers were very informative and helpful. The assignments are made to strengthen career skills and prepare one for the future! I hope to take more classes like this one!”
- “I thought it was fantastic, and I truly enjoyed the diversity of topics and speakers. My only recommendation would be to continue to bolster the resource page with more opportunities to learn and connect.”
- “Odyssey plan really helped, the interview and video project helped me reach out as well and I learned a lot from the professional I talked to.”

Additional Feedback from Student Emails

- “I would first like to express my gratitude for this opportunity, as I found this course to be extremely beneficial and educational. As a sophomore in Civil Engineering, I found this course to be insightful as it aligned with my future career plans.”
- “I was able to make it to just about every class. I really enjoyed getting to learn about so many diverse topics from speakers with such a broad range of experiences. Thank you for facilitating additional opportunities for growth by encouraging us to connect with speakers (I have been in touch with one speaker) and listing conferences on the resource page (I attended the Rail-Volutions Conference in November) as that had a big impact on me.”

VI. Evaluation

On the last day of the course, students were invited to provide feedback about the overall structure of the course and how it could be improved. Instructors used Mentimeter, an online survey tool, to collect anonymous feedback from students on four questions. These responses were used to inform the recommendations outlined in Chapter VIII. Recommendations.

1) What was the best part of this class?

- “Engaging”
- “Seeing a variety of professionals with different career paths and education levels”
- “I liked that we heard from a wide range of people in the transportation industry”
- “Definitely the variety of professionals ranging from different types of interests”
- “Hearing all the speakers share their experiences and insights”
- “I also liked learning about the steps they took to get there”
- “Completing the Odyssey Plan”
- “I loved seeing all the different professions that exist in the transportation industry”
- “To know about the different opportunities in transportation engineering careers”
- “The speakers”
- “More active assignments/participatory assignments”

2) How would you recommend this class be revised or improved?

- “Make the class more interactive”
- “I would reduce the number of professionals to 2 per session just to get a little bit deeper into each topic. Also increase breakout rooms for something like that.”
- “I wish some materials can be more customized to certain groups of people.”

3) What would you tell another student who has never considered a career in transportation to get them interested in taking this class in the future?

- “Showing them it’s more important than just a road class”

- “It’s a lot more than just roads, there’s so many options out there”
- “Data Science (most engineers now want to do more with either computer science or software development)”
- “I would say that the class is a great opportunity to hear about so many different careers”
- “To learn about different opportunities”
- “Transportation plays a key role in everyday life and engineering problems and solutions”

4) What is one action you are more likely to take as a result of this class that is related to your personal development (academic, career, skills, etc.)

- “I’ll be able to get an internship with the professional I interviewed”
- “To reach out to the professionals more confidently”
- “Reach out to more professionals and seek to learn from them”
- “More interested in transportation planning”
- “Speak to transportation professionals about the topics I have learned in this class”
- “Academic-wise: I think I made decisions about the classes that I took; Career-wise: Meeting new people and professionals in the industry; Skill-wise: What else can I improve”
- “Apply for jobs in a sector that I did not previously consider”
- “To continue in transportation. I definitely was interested and had an internship so this confirmed it again”

VII. Engagement with CUTC Network

The CUTC community was an important resource for finding speakers willing to speak to students about their different career paths to the transportation industry. It was also an important target audience for recruiting students to take the class. To recruit both speakers and students, an email was sent multiple times to the CUTC Google Group listserv requesting speakers and asking faculty and staff to forward information about the class to their students (Appendix F: Emails sent to CUTC Members). The email was also sent to the STRIDE Center partners to encourage students to take the class. A total of 37 professionals from around the country volunteered as speakers. A total of 14 students took the class (seven from UF and seven from outside of UF). Speakers from the CUTC community included Stan Caldwell and Lisa Kay Schweyer from Carnegie Mellon University’s Mobility21 Center, David Kack from the Western Transportation Institute at Montana State University, Calvin Tuttle from the University of Michigan Transportation Research Institute, and Dr. Lily Elefteriadou and Dr. Pruthvi Manjunatha of the University of Florida Transportation Institute/STRIDE. For the complete list of speakers, visit <https://stride.ce.ufl.edu/education/stride-careers/syllabus/>. Confirmed speakers are also listed in Appendix A: Syllabus.

This report provides a detailed template for replicating the course at other CUTC member institutions both in credit and non-credit formats. Institutions can also choose to implement this as a standalone course or use portions of the template to incorporate into existing courses at their institutions.

VIII. Recommendations

Based on survey results and student feedback, the course achieved many of its goals and was well received. Four recommendations for improving the course were compiled from student evaluations and the instructor’s experience.

- 1) Revise course structure to increase engagement between the instructor, students, and the speakers.**

A number of strategies may be incorporated into the course design to increase student engagement including a weekly class icebreaker at the beginning of each synchronous session, a requirement for students to turn on their cameras when they first enter the class and during the question-and-answer session, and more assignments that require students to collaborate or interact with one another. When possible, incorporating one or more in-person sessions for students to meet on campus would be desirable.

2) Revise course syllabus to include additional details on expectations.

To improve clarity regarding course requirements, the syllabus should include policies for late assignments and attendance, and grading rubrics for all assignments.

3) Identify strategies to increase student enrollment and participation.

Despite a widespread and concerted effort to advertise the course to students at UF, registered enrollment was lower than the desired. There are a number of factors that contributed to this.

1) The course was listed solely under the engineering department which may have limited the interest and awareness of non-engineering students. Cross-enrollment with another department such as planning, may elicit interest from a wider diversity of students. 2) In order to raise awareness of the course, additional marketing efforts may include making visits to specific introductory courses held in the spring semester to raise awareness about the course or reaching out to more academic advisors. 3) Freshmen are especially hard to enroll in the course since their registration process happens during the summer at a “Preview” session with their advisor. Therefore, raising awareness of the course among these advisors is critical to increasing freshmen enrollment.

Factors that were out of the control of the instructors included the limitation of the course being only one credit which can be difficult for students to incorporate into their schedules. The course also does not fulfill requirements for any major and so students must take the class as an elective.

To increase participation of students beyond UF, opportunities should be explored for partnerships and collaborations with other institutions. One option would be for students at other universities to apply for credit at their own institution for completion of the course. This could be done through internship, practicum, or independent study credits.

4) Identify opportunities for replication.

The pilot of the Careers in Transportation course successfully achieved the target goals and resulted in a comprehensive template for replication. This report serves as a guide for institutions wishing to implement a similar course. If there is interest, a training workshop could provide more in-depth guidance to instructors who want to teach a similar course. Additionally, interested instructors could collaborate on jointly implementing the course. Because of the virtual nature of the presentations, it would be possible for students enrolled in credit-bearing courses at multiple institutions to simultaneously participate in the synchronous sessions. In addition to this report, the research team will present results to CUTC during the Summer 2023 meeting where opportunities for replication can be discussed.

References

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Appendix A: Syllabus

CEU Credit

We will provide 1.0 CEU to professionals who complete 10 contact hours of this course which includes participating in at least 5 seminars, the completion of an Odyssey Plan, and the Professional Profile project.

Careers in Transportation Seminar

(listed as CGN4905 - Special Problems in Civil Engineering: Careers in Transportation Sem)
CGN4905 Section: 27863

Class Periods: Thursday, Periods 8-9, 3:00 PM – 4:55 PM, ET

Location: Online

(Zoom link will be posted in the Announcements section on Canvas and/or emailed to students)

Academic Term: Fall 2022

Instructors:

Ines Aviles-Spadoni
iaviles@ce.ufl.edu
352-294-7803

Ondine Wells
owells@ufl.edu
352-294-6952

Office Hours: Tuesday, 1-3 PM, 339 Weil Hall

Teaching Assistants: none

Course Description

Careers in Transportation is a 1-credit seminar that introduces students to the diverse field of transportation and the many professional opportunities available. Each week, a different topic in transportation will be explored through the lens of at least two professionals. Speakers will represent the private, public, non-profit, and academic spheres. Along the way, students will participate in short activities and assignments to explore personal experiences and academic interests as they relate to the transportation industry and potential career pathways. Due to the highly interdisciplinary nature of the transportation field, this seminar is appropriate for all majors including, but not limited to, engineering, planning, sustainability, environmental studies, marketing, journalism, communications, political science, anthropology, business, and more.

Course Pre-Requisites / Co-Requisites: none

Course Objectives

1. Students will assess their personal knowledge of transportation careers by completing 100% of the questions on a pre- and post-survey. (Survey)
2. Students will examine the role of transportation in society through discussions posts related to personal observations and experiences, peers' experiences, hands-on activities, and multimedia. (Discussions)
3. Students will increase their knowledge of transportation careers by engaging in conversations with professionals. (Guest Speakers and Networking Event).
4. Students will identify and research a transportation career by interviewing a professional and creating a 2-minute professional profile video that they will share with the class. (Project)
5. Students will identify potential pathways to pursue a transportation career through personal self-assessments and peer support. (Odyssey Plan and Small Group Discussions)

Materials and Supply Fees

Computer with internet access and phone with a camera

Required Textbooks and Software

Optional (\$19.99) - StrengthFinder Survey,

<https://www.gallup.com/cliftonstrengths/en/254033/strengthsfinder.aspx>

Recommended Materials

None

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Speaker presentations will be recorded. Following the presentations, there will be a live Q&A session that will not be recorded.

Course Schedule

Week	Topic	Speaker(s)
8/25	Introduction	<ul style="list-style-type: none"> Lily Elefteriadou, Ph.D., Director of University of Florida Transportation Institute, Barbara Goldsby Professor of Civil Engineering Erin Lin, UF Career Connections Center
9/1	Electric Vehicle Technology	<ul style="list-style-type: none"> Ria Kontou, Ph.D., University of Illinois at Urbana-Champaign Jarret Stoltzfus, Proterra
9/8	Sustainability and Environment	<ul style="list-style-type: none"> Stephanie Bolyard, Research Engineer at NCDOT Patty Cramer, Ph.D., Independent Transportation Ecologist Robert Horton, PE, VP Environmental Affairs & Sustainability, Dallas Ft. Worth International Airport
9/15	Advocacy and Policy	<ul style="list-style-type: none"> Beth Osborne, Director, Transportation for America Benito Perez, Policy Director of Transportation for America Abi Grimminger, Communications, Transp. for America Alex Bond, USDOT Policy Analyst
9/22	Transportation Planning & Data, Part I	<ul style="list-style-type: none"> Megan McGinley, HDR Tyler Valila, HDR Esther Chitsinde, HDR
9/29	Networking Event IN PERSON, no Zoom class this week	<ul style="list-style-type: none"> Plan ahead to attend one of the following events to practice your elevator pitch: <ul style="list-style-type: none"> UF Career Showcase – September 26th, 27th, and 28th (different focuses on different days) (https://career.ufl.edu/events-and-programs/career-fairs/career-showcase/) ESSIE Evening with Industry – September 27th (pre-registration required: https://www.essie.ufl.edu/evening-with-industry/)
10/6	Big Data, Artificial Intelligence & Inclusive Design	<ul style="list-style-type: none"> Alexandra Kondyli, Ph.D., University of Kansas Patrick Emami, Ph.D., National Renewable Energy Laboratory Pruthvi Manjunatha, Ph.D., University of Florida
10/13	Innovative Transportation Technology	<ul style="list-style-type: none"> Stan Caldwell, Carnegie Mellon University Lisa Kay Schweyer, Carnegie Mellon University
10/20	Transportation Planning, Part II	<ul style="list-style-type: none"> Jessica Mackey, Benesch Thuha Nguyen, Via Planning Miguel Lugo, Ph.D., US Army Corps of Engineers
10/27	Communications and Public Engagement	<ul style="list-style-type: none"> Amanda Day, Day Communications, Inc. Cantrece Jones, ADG Jacksonville Calvin Tuttle, University of Michigan Adie Tomer, Brookings Institute
11/3	Economics and Public Transit	<ul style="list-style-type: none"> David Kack, Western Transportation Institute, Montana State University Chad Riding, Caltrans Erik Siebert, Benesch
11/10	Equity and Accessibility	<ul style="list-style-type: none"> Amar Cid, Caltrans Office on Race and Equity Noreen McDonald, University of North Carolina David Yang, AAA Foundation Joshua Johnson, Lyft
11/17	Internships, Students, and Recent Graduates	<ul style="list-style-type: none"> Leoni Barkakati, Kittelson (UF grad) Rebecca Kiriazes, Ph.D., Catholic University of America, (Georgia Tech grad)

		<ul style="list-style-type: none"> • Lindsey Oluyede, Ph.D., Presidential Research Fellow, Arizona State University (UNC Chapel Hill grad) • Elisabeth Staten, Planner, City of St. Petersburg, FL (UF grad)
12/1	Project Presentations	

Attendance Policy, Class Expectations, and Make-Up Policy

Students are expected to participate in the live Zoom session with speakers each week during the designated class periods. During the question and answer portion of each class, students are expected to actively engage with guest speakers. Discussion posts provide an opportunity for students to get to know one another, share their person experiences and insights regarding transportation, and to reflect on the topics discussed by presenters. Students are allowed one absence without penalty. In-person attendance at the networking event is required. If you anticipate not being able to attend, please contact the instructors as soon as possible to determine a make-up assignment. Excused absences must be consistent with university policies in the [Graduate Catalog](#) and require appropriate documentation. Additional information can be found in [Attendance Policies](#).

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Attendance & Participation (13)	90 total (7 each)	26%
Discussion Posts (11)	110 total (10 each)	31%
Odyssey Plan	50	14%
Project – Professional Profile	100	29%
TOTAL	350	100%

Grading Policy

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 – 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 – 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

[UF Graduate Catalog](#)

[Grades and Grading Policies](#)

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. [Click here for guidance on how to give feedback in a professional and respectful manner](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. [Summaries of course evaluation results are available to students here](#).

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” [The Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the [Notification to Students of FERPA Rights](#).

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

Library Support, Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

[Student Complaints Campus](#)

[On-Line Students Complaints](#)

Appendix B: Speaker Outline and Tips

Overview of Class

- Our goals
- Audience: ages, majors
- Format: Topics, professional presenters, student representatives
- Thursdays, 3 PM to 4:55 PM (Fall 2022)

Presentations: 20-25 min (times are approximate)

Big Picture – 3 min (Please add visuals whenever possible)

- What problem(s) do you work on? Why is this important?
- Few key datapoints if relevant related to big picture
- How would you dispel the myth of what transportation is? Many students are not aware of the variety of jobs that exists in transportation and how multidisciplinary it is.

1) Your Agency/Organization/Business – 6 to 8 min (Please add visuals whenever possible)

- What does your agency/organization do overall in relation to the big picture? Why is this important?
- Organizational chart of people OR highlights of the different types of careers that include people working on different aspects of transportation
- Examples of other professionals/organizations that you collaborate with?
- How do you/your organization impact the community or making a difference (local and beyond)?

2) Personal – 10 to 12 min (Please add visuals whenever possible)

- What is your job?
- What was your path to getting here?
- What were some interesting milestones or experiences that you had along the way? (a summer job, a personal experience, an observation, a teacher, something you read, etc.)
- Were there things you were not particularly good at that you had to learn or improve on in order to get here?
- Are there some skills you didn't think you needed, but have found are helpful in your job?
- What is a typical day like?
- Why is your job interesting? What do you like best about your job?
- What challenges or voices did you hear that discouraged you and how did you overcome it?
- **Images or video of your workplace – even just 1 min**

3) Future – 2 min (Please add visuals whenever possible)

- What kinds of jobs will there be in the future?
- Future problems/opportunities?
- Does your company have internships that you could alert students to?
- Types of training that would be helpful?

4) Resources/Activities -- to be provided on our website

- What are some web resources that students could explore to learn more

Q&A – (10 minutes)

Tips

- Try not to use acronyms or jargon
- Use images and visuals
- Try not to get too technical

Appendix C: Class Assignments

Week	Topic	Assignment (due by Wed midnight the day before class)
8/25	Overview	<p>No assignment due before first class</p> <ul style="list-style-type: none"> In-class activity: Draft Odyssey plan
9/1	Class Introductions	<p>Introductions Complete Transportation Career pre-survey UF Students: https://ufl.qualtrics.com/jfe/form/SV_22WXataxX8znrVQ Audit Registrants: https://ufl.qualtrics.com/jfe/form/SV_aa9NeUQBsgNyCGO</p> <p>Background on Careers in Transportation</p> <ul style="list-style-type: none"> Watch the 5-minute video “Your Future in Transportation,” produced by the Transportation Research Board (TRB). https://www.youtube.com/watch?v=YkT4UZL-tpo <p>Discussion Post (100 words)</p> <ul style="list-style-type: none"> Introduce yourself by sharing your major/department (if you have declared it), what motivated you to take this class, what your interests are, or any other details. Identify one thing in the video that interests you that you would like to learn more about. Please include a photo that shares something about you. (You can be in the photo or not).
9/8	Sustainability and Environment	<p>Background on Wildlife Issues in Transportation (pick 2)</p> <ul style="list-style-type: none"> Colorado Department of Transportation - Video - Colorado State Highway 9 Wildlife Crossings - The First Five Years - YouTube 99% Invisible - Article and videos on Fish Cannon TR News - Article on Transportation Ecology and Wildlife Passages: The State of the Practice and Science of Making Roads Better for Wildlife, pages 12-19 <p>Discussion Post (100 words)</p> <ul style="list-style-type: none"> Based on the articles and videos you selected and your personal experiences, what are your thoughts on the intersection of transportation and wildlife? What are the roles of different professionals who work in this field? What do you think will be the obstacles and opportunities in this field in the future?
9/15	Advocacy and Policy	<p>Background</p> <ul style="list-style-type: none"> mrbaricade on TikTok – Participating in Local Government Bicycle Dutch on YouTube - Systematic Safety: The Principles Behind Vision Zero, 8 min video Look at the website Crossing Gainesville from The Alligator to learn about the history and current issues related to University Avenue. <p>Optional</p> <ul style="list-style-type: none"> Maria Coady, YouTube - Nothing's Gonna Happen, 9 min video If you would like to know more about Gators Against Student Pedestrian Deaths, see their Facebook group

		<p>Discussion Post (100 words)</p> <ul style="list-style-type: none"> When reflecting on the University Avenue redesign process, who are the different stakeholders that you feel are needed to create effective advocacy? What are some of the obstacles to changing policy and the road design? What do you see your current (as a student) and/or future role (as a professional or citizen) could be with this or similar transportation challenges in the community you live in?
9/22	Transportation Planning	<p>Background on Complete Streets</p> <ul style="list-style-type: none"> FL Department of Transportation's Complete Streets website and video, (Links to an external site.), 2 min Robert Steuteville, Seven case studies of complete streets - watch video (Links to an external site.), 10 min <p>Activity & Discussion Post (Streetmix.com & 100 words)</p> <ul style="list-style-type: none"> Identify a road you are familiar with that you think could be redesigned. Use the Google Map to measure the actual width of the street (using distance feature). Describe what the surrounding land uses are by capturing images on Google Streetview (using screenshot). Using Streetmix.com (Links to an external site.) redesign the street with the Complete Streets principles in mind. Make sure that your street in Streetmix.com is the same width as the street you measured on Google Maps. Post a screenshot of the current street from Google and your redesigned street on Streetmix.com. Include a 100 word description of why you designed the street the way you did and how the surrounding land uses impacted your decisions about design. Were there Complete Street features you wanted to include in your street but couldn't?
9/29	Networking Event Plan ahead which event/day/time you will attend in person. There will not be a Zoom class this week.	<p>Create Your Elevator Pitch</p> <ul style="list-style-type: none"> Using the UF Career Connections Center Guide (Links to an external site.), create a short elevator pitch. For more help on creating your own pitch, see the Conversation Starters (Links to an external site.) on the UF Career Connections website. <p>Attend Event & Practice Your Pitch - September 27 and 28th</p> <ul style="list-style-type: none"> Attend one of the UF Career Showcase events (Links to an external site.) or the ESSIE Evening with Industry event (https://www.essie.ufl.edu/evening-with-industry/) this week and try out your pitch. <p>Discussion (100 words)</p> <ul style="list-style-type: none"> Describe your experience trying out your pitch. What did you learn? What went well? What could you improve next time? Peer Feedback – (by the next class on October 6th) Over the next week, listen to your classmate's elevator pitches and provide feedback in the discussion: What did they do well? Are there things you wish they included? How did their pitch make you want to know more about them?

10/6	Big Data & AI Inclusive Design	<p>Background</p> <ul style="list-style-type: none"> • ITE Talks Transportation Podcast: INRIX President and CEO Bryan Mistele Talks Transforming Transportation with Big Data (20 min) • USDOT, Intelligent Transportation Systems Joint Program Office: Intelligent Transportation Systems: What’s Available Today and the Vision for Tomorrow - Video (3:30 min) <p>Discussion (100 words)</p> <ul style="list-style-type: none"> • What do you think are some challenges and opportunities with using big data in making transportation decisions? What do you think the future of intelligent transportation systems could be?
10/13	Innovative Transportation Technology	<p>Complete Self-Assessments</p> <ul style="list-style-type: none"> • <i>Optional</i>: Top 5 CliftonStrengths (Links to an external site.) Quiz (costs \$19.99) • If you do not complete the Top 5 CliftonStrengths Quiz, complete the free UF COMP (Links to an external site.) career and educational planning tool or another self-assessment found on the UF Career Connections Center website (Links to an external site.). • Complete the Growth Mindset Quiz (Links to an external site.) • Watch “Pathway Transformation Initiative – Growth Mindset (Links to an external site.),” a 4-min video developed by Fullerton College: https://youtu.be/d0jEF66xSBA (Links to an external site.) <p>Begin Project</p> <p>Project Part I: Professional Profile</p> <ul style="list-style-type: none"> • Considering some of your personal interests, research some transportation professions that you would like to learn more about. Think about what type of sector you may be interested in interning/working for and research the types of professionals who work there. • Reach out to and schedule a 30-min interview (Zoom, phone, etc.) with one professional over the next 2 weeks. • Use the UF Career Connections Informational Interview Guide (Links to an external site.) to help identify a professional and prepare for the interview: <p>The informational interview will provide information to help you create a 2-min video presentation profiling the selected professional and their career. This video (Part II of the project) will be due on November 16th.</p> <p>Discussion</p> <ul style="list-style-type: none"> • Post the name of the person you will be interviewing, their position, and their place of employment.
10/20	Transportation Planning, Part II	<p>Background</p> <p>Select one article or video that interests you from these resources. If you have a different resource related to planning, you are welcome to use that as well.</p> <ul style="list-style-type: none"> • StreetsBlogUSA (Links to an external site.) • Not Just Bikes YouTube channel (Links to an external site.) <p>Activity & Discussion Post (200 words)</p>

		<ul style="list-style-type: none"> • Provide a link to the article/video you selected. • Write a 200-word reflection that connects your article/video to your personal experiences, observations, and interests. How does this article/video help you think about the design of your community and role of transportation professionals? \ • Activity: Identify and describe 1 example of a place you have visited/lived that provided a really good experience and 1 example of a really bad experience. Explain what factors made them that way. Post a photo of each place that you refer to (can be a screenshot from Google Streetview).
10/27	Communication & Public Engagement	<p>Background</p> <p>Choose one of these:</p> <ul style="list-style-type: none"> • Overview (4 pgs) – Smart Growth America: https://smartgrowthamerica.org/wp-content/uploads/2019/03/Improving-public-engagement_FINAL.pdf • Article – Planetizen.com: https://www.planetizen.com/features/115279-its-time-public-participation-evolve-transportation-planning <p>Overview Video</p> <ul style="list-style-type: none"> • FHWA – “Public Involvement” (7:30 min) - Overview of public involvement process in transportation - https://www.youtube.com/watch?v=d_uaQygddVM <p>Videos on Specific Techniques – all from FHWA (choose 1)</p> <ul style="list-style-type: none"> • Public Involvement: Interactive Maps (4 min) - https://www.youtube.com/watch?v=9o5AnWUbdzY • Public involvement: Creative use of short videos (6:30 min) - https://www.youtube.com/watch?v=CWMYKgl9kBM • Innovative Spotlight: Virtual Public Involvement (3:30 min) - https://www.youtube.com/watch?v=WlOKvGVT3pA • Public Involvement: Story Maps (5:30 min) - https://www.youtube.com/watch?v=97YNnyYW-gY • Public Involvement: Targeted Online Advertisements (4:40 min) - https://www.youtube.com/watch?v=Jm0ZQAZ1tpc • Public Involvement: Online in the Field (6 min) - https://www.youtube.com/watch?v=CGMI9pgOssk • Public Involvement: Telephone Town Halls (5 min) - https://www.youtube.com/watch?v=FTtfMlPjSso • Public Involvement: Emerging Uses of Visualization Case Study Video (5:30 min) - https://www.youtube.com/watch?v=6811und-Blw • Public Involvement: Building an Engaged Social Media Following (5 min) - https://www.youtube.com/watch?v=keE3subRRg <p>Discussion (100 words)</p> <ul style="list-style-type: none"> • What are some of the factors that a communications professional needs to consider when developing a successful public involvement campaign? What do you think might be additional or future strategies for effectively engaging the public?
11/3	Economics and Public Transit	<p>Background</p> <ul style="list-style-type: none"> • 99% Invisible Podcast – Episode 388: Missing the Bus - listen to podcast (start min 2:50) OR read transcript summary with images

		<p>Activity – Route Planning</p> <ul style="list-style-type: none"> • Select a starting point (your home, friend’s house, school) and a destination that is at least a mile away and at least 5 blocks away from the UF campus (grocery store, hospital, doctor’s office, big box store, gym, museum, entertainment location, park). • Using Google Maps (or another app), identify two ways you can get to your destination without a car. One method must incorporate the public bus (RTS). For each route, provide a description of the mode(s) used, the time it would take, if there are certain times when your route would not be available, and the one-way cost <p>Discussion (post info on your routes above plus 100 words of discussion)</p> <ul style="list-style-type: none"> • While you are not actually travelling on these routes, describe what you think these two experiences would be like to the best of your ability. Reflect on how this experience would be different if you were carrying bags of groceries, were unable to walk long distances, or had other complications that might make travel more challenging. What factors do you think a transportation planner has to take into account when deciding what public transit options and routes to provide?
11/10	Equity and Accessibility	<p>Pick one of the topics (Accessibility OR Pedestrian Experience) below to explore and write about in your discussion post.</p> <p>1) Accessibility</p> <ul style="list-style-type: none"> • Mrbarricade on TikTok (ADA compliance in public space) <p>Select one of the following:</p> <ul style="list-style-type: none"> • 99% Invisible Podcast Episode 308: Curb-Cuts - Listen to podcast or read transcript; Note - transcript does not include the last portion of the podcast that talks about the “curb cut effect” – starting at min 42) • Birdability – watch video (min 8 to 36; can watch the rest of the video to learn more about other accessibility features) OR look at website (similar information to what is presented in the video if you prefer to read it) <p>2) Pedestrian Experience (Select 2)</p> <ul style="list-style-type: none"> • Look at the Overview for Smart Growth America’s report Dangerous by Design 2021 • Vox, watch Walking While Black, 8 min video • Ray Bradbury’s short story “The Pedestrian” (listen to 12 min video/recording) • Watch some videos from PedestrianDignity on TikTok <p>Activity & Discussion (100 words)</p> <ul style="list-style-type: none"> • Record a short video (maximum 60 seconds) of somewhere you walked this week (off campus if possible) and describe the design of the space and your observations of people using the space. Consider how this space works or doesn’t work in the context of the topic you chose above (accessibility or pedestrians). • Do NOT record any video while walking or using a vehicle (motorized or not). Please stand still in a safe location off of the road while showing the area and describing it. • Post your video in the discussion.

		<ul style="list-style-type: none"> Write a short reflection on your readings and the space you chose to record. What does autonomy mean to you in terms of accessibility or as a pedestrian? How might this be different in other circumstances? How do you think transportation professionals factor in these types of experiences in their work?
11/17	Internships, Students, and Recent Graduates	<p>Project Part II: Professional Profile Video</p> <ul style="list-style-type: none"> Create a 1-2-min video describing the professional you interviewed and their job. This can be as creative as you want, but should at a minimum include basic information about the profession as described (provide) Make sure you have their written permission to share the video publicly on our website and give them credit for any visuals they provide for you. Post your video to Canvas <u>by Tuesday midnight</u>. Watch and respond to at least two classmates before class on Thursday.
11/24	Thanksgiving	No Class – work on Revised Odyssey Plan
12/1	Closing Small Group Discussions & Presentations	<p>Complete 2nd Version of Odyssey Plan (submitted to instructor only)</p> <ul style="list-style-type: none"> 1st Draft of Odyssey Plan 2nd Draft of Odyssey Plan <p>Write a personal reflection of 300 words that includes the following:</p> <ul style="list-style-type: none"> How has your Odyssey Plan changed since the beginning of the course? What steps do you personally want to take after completing this course? What lessons learned or ideas will you take with you? What have you learned from professionals and your peers?

Appendix D: Resource Webpage

UF Resources - STRIDE

stride.ce.ufl.edu/education/stride-careers/resources/

UF STRIDE Southeastern Transportation Research, Innovation, Development and Education Center

ABOUT RESEARCH EDUCATION K-12 WORKFORCE DEVELOPMENT TECHNOLOGY TRANSFER

UF COVID-19 UPDATES MORE INFORMATION →

RESOURCES

- COURSE MATERIALS DEVELOPED BY STRIDE
- STRIDE ONLINE COURSE REPOSITORY
- STUDENT OF THE YEAR
- CAREERS IN TRANSPORTATION
 - Syllabus & Speakers
 - Resources**
 - Careers in Transportation Course Video

INTERNSHIPS & JOBS

- [Virtual Transportation Career Fair](#) - October 28, 2022 - **NEW!**
- [Florida Department of Transportation](#)
- [North Carolina Department of Transportation](#)
- [HDR](#) - Search "Jobs" and check "Internships"
- [Benesch](#)
- [Acuity Design Group](#)
- [Caltrans](#) - search "Caltrans" in the Keywords, primarily CA students
- [Transportation for America](#)
- [Smart Growth America](#)
- [National Renewable Energy Laboratory](#)

ACADEMIC OPPORTUNITIES

- University of Florida - [Bachelors, Masters and PhD degrees](#) are offered in Civil Engineering with emphasis on Transportation Engineering
- University of Illinois Urbana-Champaign - [MERGE \(Multicultural Engineering Recruitment for Graduate Education\)](#)
- Catholic University of America - Dr. Kiriazes looking for PhD students (can provide funding) - contact kiriazes(at)cua.edu

UF CAREER CONNECTIONS CENTER RESOURCES

- [Odyssey Plan - Overview and Video \(2:30 min\)](#)
- [Odyssey Plan Instructions](#)
- [Odyssey Plan Worksheet](#)

UF Resources - STRIDE

stride.ce.ufl.edu/education/stride-careers/resources/

UF STRIDE // Southeastern Transportation Research, Innovation, Development and Education Center

ABOUT RESEARCH EDUCATION K-12 WORKFORCE DEVELOPMENT TECHNOLOGY TRANSFER

UF COVID-19 UPDATES [MORE INFORMATION](#) →

- [Odyssey Plan Instructions](#)
- [Odyssey Plan Worksheet](#)
- [Odyssey Plan - Example 1](#)
- [Odyssey Plan - Example 2](#)
- [Elevator Pitch Guide](#)
- [Conversation Starters](#)
- [Informational Interview Guide](#)
- [Self-Assessments](#)
- [2022 UF Career Showcase Event page](#)
- [2022 ESSIE Evening with Industry Event Page](#)

NEWSLETTERS ABOUT TRANSPORTATION

(click on each to reach sign-up page)

- [University of Florida Transportation Institute - newsletter](#)
- [Carnegie Mellon University's Traffic21 - The Smart Transportation Dispatch - weekly newsletter](#)
- [University of Michigan - Center for Connected and Automated Transportation - quarterly newsletter](#)

PROFESSIONAL ORGANIZATIONS

- [Institute of Transportation Engineers \(map of student chapters in US\) \(UF Gator ITE - Student Chapter\)](#)
- [WTS International \(UF Gator Chapter of WTS\)](#)
- [Intelligent Transportation Systems \(ITS\) America](#)
- [American Society of Civil Engineers \(ASCE\)](#)
- [Institute of Electrical and Electronics Engineers \(IEEE\)](#)

UF Resources - STRIDE

stride.ce.ufl.edu/education/stride-careers/resources/

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ABOUT RESEARCH EDUCATION K-12 WORKFORCE DEVELOPMENT TECHNOLOGY TRANSFER

UF COVID-19 UPDATES

- American Society of Civil Engineers (ASCE)
- Institute of Electrical and Electronics Engineers (IEEE)

[MORE INFORMATION](#) →

CONFERENCES

- **Transportation Research Board (TRB)** - January 8-12, 2023 in Washington, DC - Transportation for America is hosting the **Transportation Camp DC** the weekend before TRB. Students get \$15 off general admission tickets with the code STUDENT23.
- **International Parking & Mobility Institute (IPMI)** - **Fort Worth** in June
- **Institute of Transportation Engineer (ITE)** - **Portland** in August
- **National Association of City Transportation Officials (NACTO)** - **Denver** in May
- **Rail-Volution: Transit & Community Development Conference** - **Miami** in late October/early November 2022
- **ITS America** - annual meeting in **Dallas** for April
- **American Public Transportation Association (APTA)** - several **locations** in 2023 depending on transit interests

OTHER OPPORTUNITIES

- **ARTBA Student Video Contest** - December 2, 2022, up to \$500 in prizes - **NEW!**

This page is regularly updated. Please contact us if you have a resource to add.

- Ondine Wells, M.S., Education/Technology Transfer Coordinator, UFTI/STRIDE at owells@ufl.edu
- Ines Aviles-Spadoni, M.S., Research Coordinator, UFTI/STRIDE at iaviles@ufl.edu

Appendix E: IRB Approved Pre/Post Survey

Please read this document carefully before you decide to participate in this research study. Your participation is voluntary, and you can decline to participate, or withdraw consent at any time, with no consequences.

Study Title: Exploring Career Paths in Transportation: Fall 2022

Person(s) conducting the research:

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Purpose of the research study: This survey is designed to measure how your participation in the Careers in Transportation Seminar impacts your awareness and interest in the transportation profession.

What you will be asked to do in the study: For the study, you will be asked to complete a pre-survey at the beginning of the course and a post-survey at the end of the course. This is a voluntary survey and is not a required component of the Careers in Transportation course. Your completion/non-completion of this survey will remain anonymous to the instructors. Participation or non-participation in this survey will not affect your grade in the course.

Your level of participation in the course will not be evaluated as part of this study. As a student in the course, you will listen to presentations from professionals (recorded on Zoom and made available to the public), question and answer sessions with the professionals (not recorded and only held live during the class on Zoom), and completion of class assignments.

Time required: The completion of each survey (pre at the beginning of the course and post at the end of the course) is expected to take approximately 15-20 minutes.

Risks and benefits: There are no risks or discomforts anticipated.

Confidentiality: All responses to this survey are anonymous and data will not be identifiable. Reporting class status, ethnicity, and gender information is optional and data will only be reported as a total percentage for all respondents.

Compensation: There is no compensation for completion of this survey.

Source of funding for the research: Council of University Transportation Centers (CUTC)

May the researcher(s) benefit from the research? We may benefit professionally if the results of the study are presented at meetings or in scientific journals.

Withdrawal from the study: You are free to withdraw your consent and to stop participating in this study at any time without consequence. You can decline to answer any question you don't wish to answer. If you do not submit your survey, the data will not be used in the analysis.

If you wish to discuss the information above or any discomforts you may experience, please ask questions now or contact one of the research team members listed at the top of this form.

If you have any questions regarding your rights as a research subject, please contact the Institutional Review Board (IRB02) office (University of Florida; PO Box 100173; Gainesville, FL 32610; (352) 392-0433 or irb2@ufl.edu.)

Agreement: Now that you've read about the study, if you wish to participate, click the "I agree to participate" button to continue; if you do not consent to participate, click "I do not wish to participate" or just close this window.

- I agree to participate
- I do not wish to participate

SKIP LOGIC: If the participant selects "I do not wish to participate" the survey will automatically close.

Are you 18 years of age or older?

- Yes
- No

SKIP LOGIC: If the participant selects "No" the survey will automatically close.

Survey Questions (to be distributed via Qualtrics)

Q: What is your current status:

- Undergraduate freshman
- Undergraduate sophomore
- Undergraduate junior
- Undergraduate senior
- Graduate MS student
- Graduate PhD student
- Professional
- Other

Q: If you are a student, what is your major (or intended major) or graduate focus area? (You can write "undecided" if you are not sure.)

(open ended)

Q: Ethnicity

(open ended)

Q: Gender

(open ended)

Q: Please list the first 3 JOBS that come to mind when you think of a career in transportation.

(open ended)

Q: Below are some examples of careers in transportation. Please indicate the level of knowledge you feel you have about each career.

Scale: Not knowledgeable at all, Slightly knowledgeable, Moderately knowledgeable, Very knowledgeable, Extremely knowledgeable

- Computer science/technology
- Artificial intelligence
- Advocacy
- Policy
- Engineering (any type)
- Mechanical (ex. Engineering or building/repair of machines)
- Infrastructure (ex. Roads, bridges)
- Environment (ex. Protecting resources like water or air)
- Operation of vehicles
- Supply chains and logistics
- Planning
- Material science/engineering
- Software development
- Communications and/or marketing
- Human behavior
- Innovative technology
- Design
- Community Engagement
- Marketing/Communications
- Education/Training
- Construction
- Public transit systems

- Companies providing transportation

Q: Below are some issues that transportation professionals may work on. Please indicate the level of knowledge you feel you have about HOW transportation professionals work on these issues:

Scale: Not knowledgeable at all, Slightly knowledgeable, Moderately knowledgeable, Very knowledgeable, Extremely knowledgeable

- Congestion
- Safety
- Efficiency
- Supply chain
- Policy
- Climate change/Environment
- Wildlife
- Energy
- Technology
- Ethics
- Equity
- Accessibility
- Health access
- Vulnerable or marginalized populations

Q: How interested are you in pursuing a career related to

Scale: Not at all interested, Slightly interested, Moderately interested, Very interested, Extremely interested

- Transportation (area of focus undecided)
- STEM
- Engineering
- Planning/Urban Design
- Transportation planning
- Transportation engineering
- Human Behavior
- Computer Science
- Software Development
- GIS
- Data Scientist
- Marketing/Communications
- Community Engagement
- Research

Q: If you are interested in pursuing a career not listed, please describe it below.

(open ended)

Q: How interested are you in pursuing a career in the following sector:

Scale: Not at all interested, Slightly interested, Moderately interested, Very interested, Extremely interested

- Academic
- Private (ex. companies)
- Public (ex. government)
- Non-profit
- Consulting
- Own a business
- Other

Q: How would you rate your confidence in your ability to:

Scale: Not at all confident, Slightly confident, Moderately confident, Very confident, Extremely confident

- Identify personal career goals
- Identify career paths or jobs you may be interested in
- Identify the steps needed to pursue a career path or job you are interested in
- Develop the skills needed for a career you are interested in
- Find an internship
- Find information about potential employers
- Conduct an informational interview
- Articulate personal goals to professionals
- Secure a job that you are interested in

Q: Please indicate how you feel about the following statements:

Scale: Strongly disagree, Somewhat Disagree, Neither disagree nor agree, Somewhat Agree, Strongly agree

- My social network (family, friends, etc.) would support me pursuing a career in transportation.
- I can secure a job in the transportation sector that will pay a salary I am happy with.
- I can see myself working in the transportation field.
- I have received encouragement from peers to pursue a career in transportation.
- I can work on issues that are important to me in the field of transportation.
- I can make a difference in a job in transportation.
- I can identify and overcome barriers that I may experience when pursuing a job in transportation.
- I have role models in the transportation field.

- I have skills that I can use in a career in transportation.

Q: How unlikely or likely is it that you will do the following after this class:

Scale: Extremely unlikely, Somewhat unlikely, Neither unlikely nor likely, Somewhat likely, Extremely likely

- Apply for an internship related to transportation
- Attend a talk or webinar about a transportation career
- Reach out to a transportation professional for an informational interview
- Pursue a job related to transportation
- Take a class, certificate or other training on a transportation topic
- Pursue a skill that I can use in a transportation field
- Continue learning about the transportation field

Q: I have completed the following tasks prior to this course:

(wording for post-survey: I have completed the following tasks as a result of this course:)

Choices: Yes or No

- Created a personal career plan
- Attended a talk or webinar about a transportation career
- Researched different types of transportation careers
- Identified transportation-related careers that I am interested in
- Conducted an informational interview with a professional
- Talked with a family member about one or more careers in transportation
- Talked with a friend or other non-family member about a one or more careers in transportation
- Researched details about different careers (typical day, salary, work environment, etc.)

Q: If you have researched or learned about transportation careers prior to this class, please describe the different ways you have done this (ex. class, videos, etc.).

(open ended)

Q: What do you hope to learn or achieve through this course?

(open ended)

Post Survey Questions ONLY

Q: The following class activities have improved my ability to prepare for a future career

Scale: Strongly agree, Disagree, Neither agree or disagree, Agree, Strongly agree

- Presentations from professionals
- Discussions and activities
- Odyssey Plan
- Professional Profile project (informational interview and video)

Q: Please describe how your confidence and interest in pursuing a transportation career have changed as a result of this class?

(open ended)

Q: Thank you for completing this survey and participating in our course this semester. Please provide any recommendations or additional feedback.

(open ended)

Appendix F: Emails sent to CUTC Members

Email 1

Subject: Join us - Careers in Transportation Seminar - students and professionals welcome, registration required

Faculty: *Please forward this opportunity to your students.*

Dear CUTC community,

We are excited to invite you to participate in our **STRIDE Careers in Transportation Seminar** starting August 25, 2022. This project is made possible with generous support from the Council of University Transportation Centers (CUTC) New Initiatives program.

The goal of the 14-week seminar is to **raise awareness and interest in a wide range of transportation careers**. The [syllabus](https://stride.ce.ufl.edu/stride-careers/) (subject to some changes) may be viewed at <https://stride.ce.ufl.edu/stride-careers/>

The seminar is **free** and is **open to students (undergraduate and graduate) as well as career professionals** wishing to explore opportunities within the transportation workforce.. **Registration is required** and **spaces are limited**.

Registered participants who complete

- 5 seminars,
- an Odyssey Plan, and
- Professional Profile project

will receive a **Certificate of Completion**.

To participate, please **complete the registration form** (<https://forms.gle/dzQfoxG4YW918P527>) **by Monday, August 22nd** and we will provide follow-up information.

We look forward to having many participants join us from the CUTC community this fall!

Email 2

Subject: Invitation to transportation professionals to share your career and inspire undergraduates

Calling all CUTC Transportation Professionals!

We invite you to share your profession with undergraduate students in our Careers in Transportation Seminar this Fall 2022 semester.

Please complete our [Contact Survey](https://forms.gle/2c82JTnA1tFknF2J6) (<https://forms.gle/2c82JTnA1tFknF2J6>) so we can add you to our list of featured professionals (with the option of participating at various levels).

We will invite professionals to share their day-to-day job, their personal path to this career and what inspired them, and how your profession as a whole impacts your community. **All professions are encouraged to participate!** We want to highlight the multi-disciplinary nature of transportation.

Please share this with colleagues you think would be interested. This course is made possible with support from the Council of University Transportation Centers (CUTC). We plan to make portions of this seminar available to the CUTC network and the broader public. If you would like more information about the class, please feel free to email me.