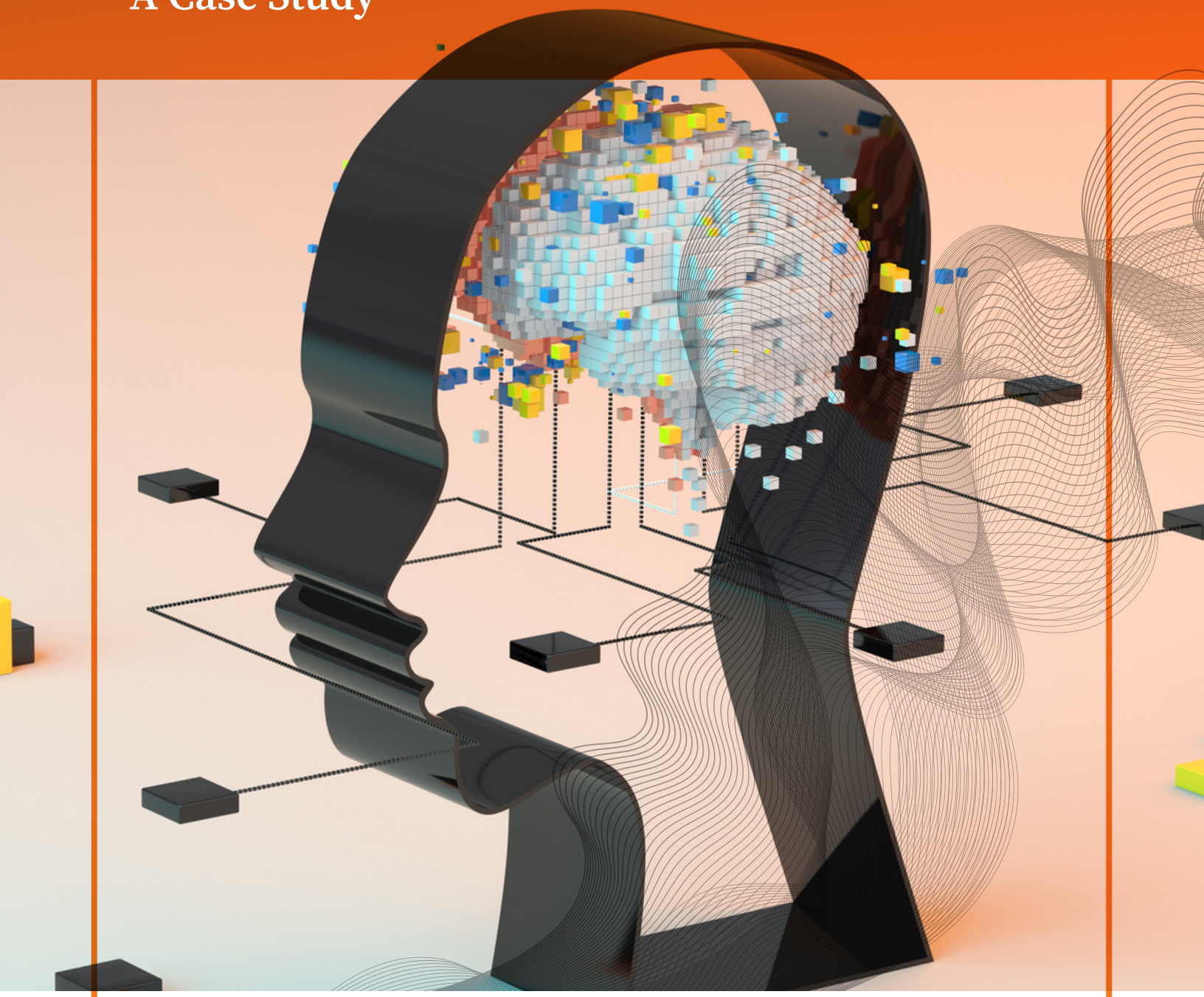
Enhancing Psychology and Cognitive Science Degrees with Microcredentials

A Case Study



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With 14 institutions that enroll over 256,000 students overall, The University of Texas System is the largest university system in Texas and one of the largest public university systems in the United States. UT institutions produced over 66,000 graduates last year and awarded more than one-third of the undergraduate degrees in Texas. They also educate more than one-half of the state's health care professionals and award 63 percent of the state's medical degrees annually. The combined efforts of UT-owned and affiliated hospitals and clinics resulted in nearly 10.8 million outpatient visits and more than 2.1 million hospital days in 2023. UT's $4.3 billion research enterprise is one of the nation's most innovative, ranking number one in Texas and number two in the U.S. for both total and federal research expenditures. With an operating budget of $32 billion for fiscal year 2025, UT institutions collectively employ more than 160,000 faculty, health care professionals, support staff, and students.

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Microcredentials in the University of Texas System

The state of Texas continues to experience strong job growth, which increases the need for employers to be able to hire workers with necessary skills upon graduation.[1] To address this challenge, The University of Texas System (UT System) launched the **Texas Credentials for the Future Initiative** in 2021 to create more opportunities for students, alumni, and incumbent workers to earn short-term credentials (i.e., professional certificates and microcredentials). Through partnerships with Coursera and Google, as well as initial grant funding from Strada Education Foundation, the UT System scaled microcredentials across their institutions to expand career opportunities, help students understand how skills learned in an academic course or program are connected to skills required by employers, and to improve post-graduate wages.[2]

Faculty members were given flexibility to implement strategies that were best suited for their academic disciplines, courses, and students. They could adopt existing professional certificates or develop their own microcredential. Faculty could also determine if a microcredential should be embedded in a course, offered as a co-curricular activity, or as a combination of the two.

This case study focuses on four microcredentials developed by faculty in the School of Behavioral and Brain Sciences at The University of Texas at Dallas (UTD), and is part of a series of four case studies that highlight how faculty in different academic disciplines at three UT System institutions utilized microcredentials in their undergraduate courses.

> **"I am honored to collaborate with faculty and staff within our System to support collective efforts to improve the career readiness of our learners by providing access to industry credentials that supplement degrees to help our learners be competitive in the evolving world of work."**
>
> **– Kelvin Bentley, Ph.D., program manager, Texas Credentials for the Future, The University of Texas System**

1 "Over 26,000 Jobs Added as Texas Labor Market Continues Growth Streak," Texas Workforce Commission, April 18, 2025, **https://www.twc.texas.gov/news/over-26000-jobs-added-texas-labor-market-continues-growth-streak**.

2 "Texas Credentials for the Future," The University of Texas System, accessed February 12, 2025, **https://www.utsystem.edu/sites/texas-microcredentials**.

Determining the Focus and Rationale for Microcredentials at UTD

The School of Behavioral and Brain Sciences (BBS) at UTD houses the departments of neuroscience; psychology; and speech, language, and hearing. Graduates from these departments become biomedical researchers, doctors, child development practitioners, psychologists, or continue their education by enrolling in graduate school. Yet, their labor market outcomes lag behind other fields such as computer science. For example, first-, fifth-, and tenth-year median earnings for UTD psychology graduates working in Texas is $40,000, $63,300, and $71,000 compared to UTD computer science

Figure 1: UTD Demographics

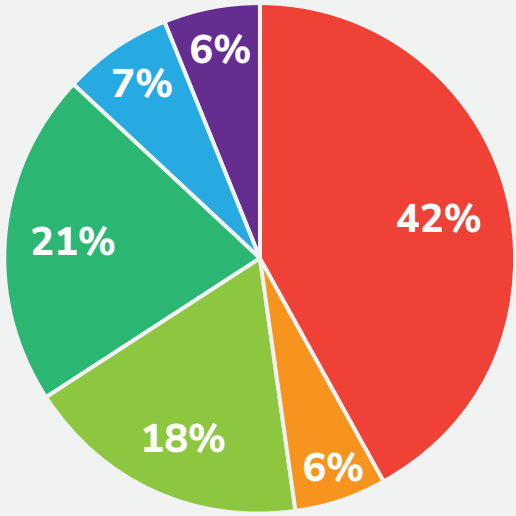
800 W. Campbell Road
Richardson, Texas 75080

University Demographics[3]

29,886 Total student enrollment

21,858 Undergraduate student enrollment

Undergraduate student demographic profile:



28% Percentage of students receiving Pell grants

93 Total number of students enrolled in BBS microcredentials in fall 2024[4]

3 "University Profile," Office of Institutional Success and Decision Support, The University of Dallas, accessed April 25, 2025, https://oisds.utdallas.edu/university-profile; and "SmartBook," The University of Texas System Office of Institutional Research, May 2024, https://www.utsystem.edu/sites/default/files/offices/institutional-research-analysis/Smartbook-2024-Print- Version-for-Website.pdf.

4 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024.

graduates who earn $85,500, $116,700, and $141,500.[5] There was also a wage gap between neuroscience and computer science graduates with neuroscience graduates earning $34,100, $60,600, and $88,900 during the same one-, five-, and ten-year periods after graduation.[6]

Recognizing that some of the fastest growing jobs by percentage involve data, artificial intelligence, and machine learning, the BBS faculty developed four microcredentials that would provide students with opportunities to develop these skills and would complement their bachelor's degree.[7] Based on the current curriculum offerings and faculty expertise, the faculty created microcredentials with the following focus areas:

- Behavioral Research Methods
- Biobehavioral Data Science
- User Experience (UX) Research
- Neural Net Math

According to the Office of Institutional Success and Decision Support at UTD for fall 2022, approximately...

10% of cognitive science majors

16% of psychology majors

8.4% of neuroscience majors

...are first-generation college students[8]

There were multiple reasons for developing these microcredentials. First, there was an interest in improving graduates' short- and long-term earnings by enhancing their degrees with career-focused skills that are in demand in the labor market. Second, by providing skills in UX, data analytics, programming languages and software, and machine learning, students would be exposed to career pathways that they might not have otherwise considered, yet which were potentially accessible to them. For example, psychology majors might pursue careers in UX research. And cognitive science majors with a strong background in computer programming and knowledge of machine learning algorithm development could pursue careers as machine learning engineers or data scientists. Third, the microcredentials could help students better understand the skills they acquire in their course of study and how to effectively communicate those skills to employers in job interviews. Instead of students providing broad and generic answers to questions employers ask in job interviews, students would be able to better articulate what skills they learned in their academic program and how those skills are relevant to a particular career. Lastly, microcredentials could be used to support UTD's first-generation learners to obtain their career goals as well as meet social and financial challenges.[9] While the initial goal was to develop microcredentials as a way to strengthen programs in the cognitive science department, it quickly became clear during the microcredential development process that the microcredentials had value to all BBS students.

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5 "seekUT Dallas," The University of Texas System, accessed March 19, 2025, **https://seekut.utsystem.edu/seekUTDallas**.

6 "seekUT Dallas," The University of Texas System, accessed March 19, 2025, **https://seekut.utsystem.edu/seekUTDallas**.

7 *Future of Jobs Report 2025* (World Economic Forum, January 2025), **https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf**.

8 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024.

9 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024; and "First-generation Student Programs," The University of Texas at Dallas, accessed March 18, 2025, **https://firstgen.utdallas.edu**.

Building the Case for Microcredentials

Obtaining Funding and Approval for Microcredentials

UTD requested funding to support the development of microcredentials from the UT System, under a grant received from the Strada Education Foundation.[10] Dr. Richard Golden, program head, undergraduate cognitive science program, School of Behavioral and Brain Sciences at UTD, initiated the microcredential development process and was the lead developer of the four BBS microcredentials. BBS used the funding to develop new courses for the microcredentials, redesign the curriculum for some of the existing courses that would become part of the microcredentials, and support undergraduate research assistants who contributed to the development of the microcredentials.

To ensure that the microcredentials met academic standards and were industry relevant, Dr. Golden worked with BBS faculty and lecturers who would be teaching the microcredential courses to develop the proposals to create the four microcredentials. These faculty and lecturers have a unique combination of extensive teaching experience, academic experience in relevant microcredential content areas, and industry-relevant experience.

The approval process began by Dr. Golden working with UTD's Office of Institutional Success and Decision Support (OISDS) to complete a template for the proposed BBS microcredentials. The template included questions about staffing requirements, workload impact on staff, program rationale, academic focus, labor market demand for the microcredential, funding model, admission criteria, number of credit hours to complete the microcredential, and the format for offering the microcredential (e.g., embedded or standalone).[11]

Once the proposal was complete, it was submitted to the Council for Undergraduate Education (CUE), which reviews and provides comments about all programs related to undergraduate education, including course curriculum.[12] The CUE is chaired by the dean of undergraduate education, who works with the other voting members of the CUE, which consists of the associate deans for undergraduate education from the seven UTD academic

10 "UT System Receives $1.5 Million Grant to Expand Microcredential Initiative," The University of Texas System, January 17, 2023, **https://www.utsystem.edu/news/2023/01/17/ut-system-receives-15-million-grant-expand-microcredential-initiative**.

11 Richard Golden, as submitted to case study author Karen Elzey, October 8, 2024.

12 "Council for Undergraduate Education – UTDPP1008," The University of Texas at Dallas, accessed March 28, 2025, **https://policy.utdallas.edu/utdpp1008**.

schools or representatives appointed by the deans. The CUE also includes ex officio and non-voting members from the UTD Office of the Registrar, UTD Office of Admissions and Enrollment, the OISDS unit leader at that time who served as the liaison for the Texas Higher Education Coordinating Board, the Southern Association of Colleges and Schools Commission on Colleges, and associate deans in the UTD Office of Undergraduate Education.[13]

The CUE provided feedback that Dr. Golden incorporated into the microcredentials proposal and shared with OISDS. OISDS then shared the revised draft with a subset of the CUE. Once the small group of CUE members approved the proposal, it was sent to the entire CUE for approval, followed by review and approval from the Committee on Educational Policy.[14] The final step was to gain approval from the Academic Senate, which is comprised of UTD faculty.

The timeline from initiating the proposal to final approval was nine months, followed by another three months before the microcredentials were offered to students. One reason for this long approval process was the frequency of when the approving committees met—some only meet several times per year. These microcredentials were first available in the fall 2024 undergraduate catalogue.

13 "Council for Undergraduate Education – UTDPP1008," The University of Texas at Dallas, accessed March 28, 2025, **https://policy.utdallas.edu/utdpp1008**.

14 "Committee on Educational Policy – UTDPP1023," The University of Texas at Dallas, accessed March 28, 2025, **https://policy.utdallas.edu/utdpp1023**.

Creating and Implementing the BBS Microcredentials

Identifying the Skills and Course Content

Several strategies and resources were used to determine the skills and content that would be included in the BBS microcredentials. The team reviewed job postings on sites such as Indeed.com to identify the skills that employers listed as relevant to specific occupations and could be incorporated into the microcredential focus areas. One area of emphasis was to ensure that the language used to define the skills in the job postings were also used to describe the skills that would be obtained by students who earned the microcredentials.

The team also reviewed several IBM courses offered through Coursera to determine if some of the IBM course content could be embedded into the microcredential courses or used as homework assignments. For example, parts of two IBM courses Machine Learning with Python, and Python for Data Science, AI, and Development were incorporated into the courses that make up the Biobehavioral Data Science microcredential.[15] Due to this incorporation, students could also pursue IBM professional certificates, including the IBM Data Science Professional Certificate and the IBM Generative AI Professional Certificate, on their own time.

"The microcredential paradigm provides students with mechanisms to showcase their acquired skills and knowledge as combinations of stackable sets of skills. Such skill sets support multiple career opportunities as well as future career opportunities which have not yet been invented by complementing and expanding the student's existing core base of knowledge and skills."

– Richard M. Golden, Ph.D., program head, undergraduate cognitive science program, School of Behavioral and Brain Sciences, The University of Texas at Dallas

15 "Python for Data Science, AI and Development," Coursera, accessed March 27, 2025, **https://www.coursera.org/learn/python-for-applied-data-science-ai**; and "Machine Learning with Python," Coursera, accessed March 27, 2025, **https://www.coursera.org/learn/machine-learning-with-python**.

BBS faculty continue to explore the opportunity to embed content from other industry courses and certificates, such as IBM's Introduction to Deep Learning and Neural Networks course and Google's UX Design Professional Certificate, into the other microcredential offerings.

Defining the Purpose of the Microcredentials

Students frequently have limited or no knowledge about certain careers or they are unsure about how to apply the skills they have learned in college in a job setting. The four microcredentials were initially envisioned as a strategy to expand career opportunities for students majoring in cognitive science, but it became clear through the development process that microcredentials are potentially relevant to many BBS students.[16]

Figure 2: BBS Microcredentials and their Relationship to Career Opportunities[16]

MICROCREDENTIAL	PURPOSE	STACKABLE WITH OTHER MICROCREDENTIALS	CAREER OPPORTUNITIES
UX Research	Provide students with basic knowledge and skills in the area of UX research and supports communication of the relevance of related coursework in psychology for UX research	Behavioral Research Methods Biobehavioral Data Science	Web designer UX/UI designer UX researcher Product experience Product development
Biobehavioral Data Science	Provide students with basic skills in the development and application of machine learning algorithms for data analysis with a focus on applications related to the behavioral and brain sciences	Behavioral Research Methods Neural Net Math	Machine learning engineer Data scientist Data analyst
Behavioral Research Methods	Provide students with behavioral research skills for interpreting and designing behavioral research studies and communicating the results of data analyses of such studies	UX Research Biobehavioral Data Science	UX researcher Behavioral research coordinator Data analyst
Neural Net Math	Provide students with training in advanced engineering mathematics relevant to neural network design, data science, and machine learning	Biobehavioral Data Science UX Research	Machine learning engineer Data scientist Data analyst

16 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024.

17 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024 and October 8, 2024.

Cognitive science majors are required to complete basic coursework in computer programming and linear algebra and have the option of taking additional coursework in computer science. Thus, as Figure 2 shows, cognitive science majors are well positioned to take advantage of not only the Behavioral Research Methods and UX Research microcredentials, but also the Biobehavioral Data Science and Neural Net Math microcredentials. The key idea is that students with these skill sets, which strategically include both skills in the behavioral and brain sciences as well as machine learning skills, are well positioned to pursue career paths in a variety of specific areas, such as the analysis of human behavioral data, biological data, medical data, and data from AI applications, which possess human behavioral characteristics.

Each BBS microcredential has a distinct purpose, but was also designed in relation to other microcredentials, as well as to build upon skills that students learn through their academic programs. For example, psychology majors can be well-positioned to pursue careers as UX researchers (see Figure 2) because of complementary psychology coursework in the areas of psychology and behavioral research methods. The two courses that comprise the Behavioral Research Methods microcredential (see Figure 3) are already part of the required academic course of study for both psychology and cognitive science majors.

The combination of a psychology degree, Behavioral Research Methods microcredential, and a UX Research microcredential allows students to expand their career aspirations and provides additional opportunities for increased earnings potential.[18]

Characteristics of the BBS Microcredentials

As Figure 3 shows, each microcredential varies in its intended audience, the required prerequisites for the courses in the microcredential sequence, the required two-course sequence, and the skills taught. For example, the target audience for microcredentials can range from any BBS student to a subset of students within an academic major. Psychology and cognitive science majors are the target audience for the Behavioral Research and UX Research microcredentials. The Biobehavioral Data Science microcredential is designed to be accessible to all undergraduate psychology, neuroscience, and cognitive science majors. However, in order to obtain a career position in biobehavioral data science, strong computer programming skills are necessary, therefore both courses that comprise the Biobehavioral Data Science microcredential provide students with computer programing skills.

Students pursuing a career in UX research do not technically require computer programming skills but such skills are still taught to students in the Quantitative UX Research course within the UX Research microcredential. The Neural Net Math microcredential is geared toward a subset of cognitive science majors who have strong math backgrounds and are interested in pursuing careers in machine learning or data science. It is expected that students with the Neural Net Math microcredential will stack this microcredential with the Biobehavioral Data Science microcredential, additional upper-division computer science machine learning courses, or additional course opportunities provided by relevant Coursera coursework which focus on data science and machine learning.

18 Richard Golden, in discussion with case study author Karen Elzey, October 16, 2024.

Figure 3: Characteristics of the BBS Microcredentials[18]

	UX RESEARCH	BIOBEHAVIORAL DATA SCIENCE	BEHAVIORAL RESEARCH METHODS	NEURAL NET MATH
Target Audience	Psychology majors Cognitive science majors	Psychology majors Neuroscience majors Cognitive science majors	Psychology majors Cognitive science majors Speech language and hearing majors Child learning and development majors	A subset of cognitive science majors who have stronger math and computer programming backgrounds and are pursuing careers in machine learning or data science
Prerequisite Courses				MATH 2414 Integral Calculus, MATH 2418 Linear Algebra, and CS 3341 Probability and Statistics in Computer Science and Software Engineering
Required Two-Course Sequence	Qualitative UX Research (CGS 4353) Quantitative UX Research (CGS 4321)	Python for Biobehavioral Data Analysis (CGS 3346) Cognitive and Neural Modeling Lab (CGS 3342)	Research Design and Methods (PSY 3392) Experimental Projects in Cognitive Science, which is a scientific writing course (PSY 3393/CGS 3340)	Intelligent Systems Analysis (CGS 4314/CS 4314) Intelligent Systems Design (CGS 4315/CS 4315)
Skills Taught	Produce wireframes and prototypes for use in UX evaluation Use Python to support quantitative UX research data analyses Develop and apply plans for UX research into user behavior and attitudes	Develop and modify Python software modules including NumPy and PANDAS Evaluate the strengths and limitations of machine learning algorithms Use KERAS (neural net/machine learning) development environment Perform data analyses using machine learning algorithm software	Write scientific technical reports and papers Critically evaluate the behavioral and brain sciences literature Design studies in the behavioral and brain sciences Analyze and interpret behavioral and brain sciences data Ability to use ethical standards to support behavioral study design	Use machine learning (ML) math to develop, evaluate, and debug ML algorithms Use ML math to communicate complex ML algorithms and theories Use ML math to read leading-edge scientific ML research publications Use the MATLAB programming language for scientific computing

19 Richard Golden, in discussion with case study author Karen Elzey, October 16, 2024; and "School of Brain and Behavioral Sciences Microcredentials," The University of Texas at Dallas Undergraduate Catalog, accessed February 26, 2025, **https://catalog.utdallas.edu/2024/undergraduate/programs/bbs/micro-credentials**.

Each microcredential incorporates clearly defined skills that students will learn through earning the microcredential. Since psychology majors do not have a lot of exposure to computer programming or machine learning, the Biobehavioral Data Science microcredential helps to close that gap by teaching students how to develop and modify Python software modules and evaluate the strengths and limitations of machine learning algorithms. With these additional skills, psychology and cognitive science majors are better positioned to pursue careers as data scientists, and students with strong computer programming skills are better positioned to pursue career paths as machine learning engineers.

The prerequisites were determined to ensure most students in the School of Behavioral and Brain Sciences have the necessary skills to successfully complete the Behavioral Research Methods, Biobehavioral Data Science, and UX Research microcredentials. For the Behavioral Research Methods microcredential, psychology and cognitive science majors easily fulfill prerequisite requirements, since the courses in the Behavioral Research Methods sequence are required core courses for all Psychology and all Cognitive Science majors. The UX Research and Biobehavioral Data Science microcredentials were developed intentionally without prerequisites to improve accessibility. The Neural Net Math microcredential, however, includes more advanced prerequisite math coursework which assumes students have successfully completed a lower-division linear algebra course, a lower-division course in calculus, and an upper-division course in calculus-based probability theory. Most cognitive science students specializing in the area of computational modeling and artificial intelligence complete these more advanced prerequisite math courses as part of their cognitive science curriculum.

To earn each microcredential, students must complete the two-course sequence as shown in Figure 3 with a grade of a B or better in each course. However, to earn the microcredential, students must declare their intent to pursue the microcredential no later than the beginning of the first course of the microcredential. They cannot complete the two courses and then decide they want to earn the microcredential retroactively.[20]

Upon completion of the microcredential, students will receive a digital badge that can be shared on social media, and the microcredential will appear on their transcript. If a student earns less than a B in the microcredential courses, the course will show on their transcript, but there will not be any indication that the microcredential was not completed. And there are no additional costs for students to earn these microcredentials, since earning each microcredential is based on completing two UTD courses that are already included in the tuition costs.

Measuring Success and Effectiveness

The process to measure the effectiveness of the microcredentials is being done using self-perception surveys. Students in all of the BBS microcredentials are asked to complete a survey at the beginning and end of both the first and second courses of each microcredential.[21] Students provide information about their major, career goals, and whether they obtained the skills that the microcredential was intended to provide. In addition, the survey asks students to provide demographic information such as income level and whether they are an adult or first-generation learner, which will provide data to determine if the microcredentials have value for all learners.

20 Richard Golden, in discussion with case study author Karen Elzey, October 16, 2024.

21 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024.

To gather information on the value of the microcredentials for employers, the surveys also include questions about whether the student has accepted a job, if the job is in a career that the microcredential targeted, and the students' perception of whether their employer believes the skills they learned by earning the microcredential are valuable.

The BBS team also developed specific measures of success for the microcredentials they created, which are defined as:

- A positive trend increase in the number of students enrolling in and completing a microcredential over time;
- Increase in the post-graduation employment of students in fields relevant to the microcredential; and
- Evidence that the microcredentials have value for subsets of students, including Pell grant recipients, first-generation learners, low-income learners, and adult learners.[22]

Data obtained from the surveys will be analyzed to both get feedback about the microcredential program as a whole and to learn how student perceptions change from the first to the second microcredential course. This information will be used to inform changes to the microcredential and program curriculum.

Employer Support and Recognition

There is a need to build employer support for these microcredentials, and this process is in the early stages. This can be achieved, in part, by integrating content from industry courses or professional certificates on Coursera into the microcredential course content, since it is the belief that since industry developed it, employers will value microcredentials that include that content. Students also receive information about Coursera courses and professional certificates when they log on to the UTD learning management system. Knowledge of or enrollment in the BBS microcredentials might also spark student's interest in completing additional Coursera offerings that have training modules which complement their microcredentials.

As more employers become aware of the relationship between the BBS microcredentials and industry-valued skills, the hypothesis is that more employers will recognize the value of the microcredentials and the students who earn them. Students who complete the requirements of a BBS microcredential receive a digital badge in addition to an annotation on their official university transcript. The digital badge is expected to facilitate employer recognition of the microcredentials' value by explicitly detailing students' accomplishments and achievements.

Another way the faculty are obtaining information about the value of microcredentials by employers is through the student self-perception survey, as previously discussed. Several of the survey questions were designed to gather information about how the students' employers value the BBS microcredentials. Additional strategies are continuing to be considered and developed to capture information about employer recognition and value of these microcredentials.

22 Richard Golden, as submitted to case study author Karen Elzey, October 7, 2024.

Student Recruitment and Support

Several strategies have been implemented to inform students about the value of these microcredentials and the impacts to their future career. During orientation for undergraduate cognitive science majors, students learn about the four BBS microcredentials with a specific focus on how they relate to future career goals and the potential impact on their future earnings. Additionally, students who are enrolled in the first course of any of the BBS microcredentials receive a presentation with more information about the four BBS microcredentials. This is important because students can take any of these courses without knowing about or specifically registering for the microcredential. So, if they are already enrolled in the first course for the microcredential, they would only need to take one other course to earn the microcredential, but must declare their intent to earn the microcredential at the beginning of the two-course microcredential sequence. Furthermore, a comprehensive overview of the BBS microcredentials was developed to be used in social posts promoting the microcredentials and is available on the UTD website.[23] And finally, UTD provides student support services, including the BBS undergraduate advising office, the AccessAbility Resource Center, and the Student Success Center.

Sustainability

UTD received grant funding from the UT System to support the development and implementation of these microcredentials. Some of the money was used by BBS to create new courses such as Quantitative UX Research and Python for Biobehavioral Data Analysis. Financial resources were also used to modify existing courses for the Behavioral Research Methods microcredential. In the future, there will need to be some additional funding support to ensure the microcredentials' content is up-to-date and to determine if any of the microcredentials need to be retired due to the skills no longer having value in the labor market.

23 "Micro-credentials," The University of Texas at Dallas, accessed February 26, 2025, **https://bbs.utdallas.edu/academics/undergraduate/micro-credentials/**.

Lessons Learned and Conclusion

Professional Certificates and Employer-Developed Courses Provide Rich Content

Professional certificates and employer-developed courses offered through Coursera provide faculty with access to career-oriented content that has been developed by industry subject-matter experts. For example, the IBM Data Science Professional Certificate is comprised of 12 courses that includes videos, readings, assignments, discussion prompts, plugins, and app items.[24] Based on relevance and level of rigor, these videos, lectures, and assignments are included in some of the microcredential courses. This provides the faculty teaching the courses with flexibility about what materials to include. And, by including aspects of the content offered through Coursera, it provides an introduction for students to other credentials that they can earn on their own.

> **"Cognitive science is a vibrant field that leads our students to many career pathways. Through the creation of our new microcredentials, we are able to not only codify training for several of these exciting pathways but also give our students an important advantage as they enter the workforce."**
>
> **– Adam J. Woods, Ph.D., dean, School of Behavioral and Brain Sciences, The University of Texas at Dallas**

Replicable Processes

The BBS faculty have developed an array of processes and tools for developing and creating microcredentials that can be replicated by faculty at other UT System institutions to develop and implement their own microcredentials. Faculty created the microcredential development process from a concept proposal to the approved two-course microcredential for academic credit. They have also created short presentations and other promotional material that can be used to increase awareness of and enrollment in the microcredentials. And, the surveys they developed for student completion help evaluate if students and employers value the microcredentials. Digital

24 "IBM Data Science Professional Certificate," Coursera, accessed February 26, 2025, https://www.coursera.org/professional-certificates/ibm-data-science.

badges which encapsulate information about acquired skills are also an important component of this process for the purpose of increasing student self-awareness of the skills they have acquired and communicating to potential employers that students have these skills.

Industry Experience

It is important that the faculty involved in developing microcredentials either have industry experience or have access to people in industry they can consult with, which is critical for ensuring that employer-valued skills were incorporated into the microcredentials. Dr. Golden made sure to incorporate faculty and lecturers who had experience in industry to contribute to the development of these microcredentials.

Clarity in Skills

Language matters. One of the main purposes of the microcredentials is to enhance students' ability to talk about the skills they learned and how they can apply those skills to future employment opportunities. By ensuring that the microcredentials were developed by people with industry experience and that the course content incorporated language used in employer job descriptions, students were better positioned to articulate their skills.

Employer Value

More work is needed to understand the value of the microcredential from the employer perspective. The student self-perception survey includes some questions about how the student perceives their employers value of the microcredential. Yet, more information is needed directly from employers to better understand whether these microcredentials have an impact on whether or not students are hired and what salary they earn.

Conclusion

Microcredentials are used to meet a variety of needs that range from rounding out and enriching a degree program, fostering persistence and retention, demonstrating competency in technical skills, to enhancing employability outcomes. This case study provides an example of how UTD faculty developed four microcredentials to enhance BBS baccalaureate degrees, expand career opportunities, and improve career earnings. By combining various types of credentials, students gain the deeper concepts from an academic degree and specific skills from a microcredential, which benefits students, faculty, and employers.