

APA Request for Establishing a New

Graduate Certificate in Computer Science Education

Respectfully Submitted By

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I. DESCRIPTION

A. Briefly describe the new program and state its objectives. The description also should focus on the knowledge, values, skills and other learning outcomes that program graduates will be expected to have acquired.

The Graduate Certificate in Computer Science Education prepares teachers for integrating computational thinking across the curriculum and teaching computer science courses in order to address the critical shortage of qualified computer science educators. When the White House identified this as a national priority, The College Board responded by creating the AP Computer Science Principles, and the Computer Science Teachers Association (CSTA) revised its standards accordingly. The National Science Foundation (NSF) provided funding for creating curricula based on the new standards, and the maker movement provided creative ways for students to visualize and demonstrate what they are learning. By earning this Certificate, educators gain key computer science content knowledge and skills for teaching at the K-12 levels, becoming knowledgeable about the new standards, materials, and methods for teaching computer science and integrating computational thinking across the curriculum. Project-based assessment, hands-on workshops, and classroom-based activities immerse candidates in effective practices that could be applied in their local settings.

II. RATIONALE AND DEMAND

A. Institutional factors.

1. Explain how the proposed program is compatible with the University purposes and objectives of General Education.

This is a graduate certificate that does not necessarily aim at addressing the undergraduate goals of general education. Nevertheless, because computational thinking is its core component, the Graduate Certificate in Computer Science Education will resonate with UD's goal of helping undergraduates learn to think computationally, given that computational thinking was added to UD's gen-ed requirements during the Faculty Senate's general education reform of 2015. Mouza

and Pollock received a Unidel interdisciplinary grant in 2017 to study and create this certificate, and an NSF IUSE grant to facilitate faculty in adapting courses to integrate computational thinking at UD.

2. Describe the planning process which resulted in the development and submission of this proposal. Describe any significant impact the proposed curricula might have on other instructional, research, or service programs of the University.

This proposal results from collaboration between the School of Education and the Department of Computer and Information Sciences in order to address the critical shortage of computer science educators. In 2016, President Obama addressed this shortage in his State of the Union address. When the White House made this a national priority, NSF provided funding to address it. Here at UD, Professors Pollock, Mouza, Atlas, Harvey, and Hofstetter participated in these NSF projects, among others. Pollock and Mouza encouraged the State of Delaware to follow the lead of other states in making computer science a requirement. In 2017, Governor John Carney signed into law Delaware House Bill 15, which mandates that all public high schools, including charter schools, must offer at least one computer science course at the high school level by the 2020-2021 school year. Further, in 2017 the Delaware Department of Education adopted computer science standards for grades K-12, making it necessary for teachers to implement pedagogical practices that integrate computer science across disciplinary content (e.g., in math, literacy, etc.). By establishing this Graduate Certificate in Computer Science Education, the University of Delaware will create our state's first pathway for Delaware teachers to be recognized as being formally prepared for teaching these courses.

3. Describe how the proposed curricula would more fully utilize existing resources.

As will be seen below in the section on curriculum, the Graduate Certificate in Computer Science Education consists of four 3-credit courses, of which two already exist. The other two are new courses that have been submitted to appear on the 2019 course challenge list.

For teachers looking to earn this Certificate as part of a master's degree program, earning the Graduate Certificate in Computer Science Education will become one of the certifications candidates can elect to earn in the elective block of the Master of Education degree in Educational Technology (EDTC) program. The other two certificate options in that program are School Library Media (SLM) certification and Entrepreneurship and Innovation. To see how these certifications work as the elective block in the EDTC program, follow this link to <http://www.education.udel.edu/masters/edtech/> and expand the coursework section.

B. Student demand

1. Describe how enrollment projections have been derived. Show anticipated number of new majors and number of program graduates. Indicate the extent to which the new curriculum is expected to attract majors and the extent to which it will provide or electives to other majors. Indicate whether new admissions will be wholly new to the campus or internal transfers.

This is a graduate certificate, not an undergraduate major. Nevertheless, we believe this Graduate Certificate in Computer Science Education will attract more students to apply to our graduate program, especially because this will initially be our state's only program devoted to addressing this critical national need. In DE specifically, there are 20 school districts and over 200 schools, all of which must demonstrate efforts to integrate computer science content. By a conservative estimate of 1 teacher per school district we expect a cohort of 20 in just the first year of the program.

2. State whether the curriculum is designed to meet the needs of specific student clientele, e.g., part-time students, currently employed professionals, non-traditional students, those preparing to reenter the job market, etc.

Although it is intended primarily for educational professionals (who are primarily part-time enrollees) wanting to teach computer science, this Graduate Certificate in Computer Science Education will be open to any EDTC master's degree candidates, as well as other graduate students wanting to add this certificate to their existing credentials.

C. Transferability

1. Document any unique agreements concerning the transfer of students or credits.

There are no transferability issues related to the Graduate Certificate in Computer Science Education.

D. Access to graduate and professional programs

1. Please respond to this item only if the proposed course of study will prepare students for entry into graduate or professional schools. Describe briefly the requirements for admission into the appropriate graduate or professional program and the prospects for appropriate employment after completion of the advanced program.

The Graduate Certificate in Computer Science Education is primarily intended for educators who already have teaching positions and want to become qualified to teach computer science. This is an option that can be earned as part of the EDTC master's program in educational technology. Sometimes candidates advance to doctoral study but most of them use the degree to improve their skills and efficacy in their current teaching positions.

E. Demand and employment factors

1. Please respond to this item only if preparing students for specific employment opportunities is a key objective. In such cases, describe the audience and unique career paths.

Finding skilled and enthusiastic computer science teachers is a challenge many schools face across the nation. The lack of adequate preparation can lead to unqualified teachers being assigned to teach computer science courses. Delaware's 2019 Career and Technical Education in the Programming and Software Development pathway describes eligible teacher requirements as "Candidate may have experience with computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. A candidate in this arena understands the principles of computational science, computer development and programming, and can adapt applications to use in a variety of situations." The Graduate Certificate in Computer Science Education will help teachers meet these requirements.

F. Regional, state, and national factors

1. List comparable courses of study in the region or the State, and explain why these existing programs cannot meet the needs of prospective students and/or employers in the geographic area which the curriculum would serve. Describe any significant differences between the proposed course of study and others in the region or State that have some similar characteristics.

Delaware does not yet have dedicated computer science positions in state or local education agencies. The responsibilities of teaching state-mandated AP computer science courses are usually carried out by teachers certified in other disciplines. Through a series of NSF grants, Professors Pollock and Mouza have been preparing teachers through a one-week summer professional development. Experience shows more professional development is needed. The Graduate Certificate in Computer Science Education takes the next step by providing a credential that teachers can earn in this realm. Delaware is one of only 13 states currently not offering such credential. Once the credential exists, the Delaware Department of Education may choose to make it a requirement for all teachers responsible for teaching computer science courses in Delaware schools.

2. Describe the regional accrediting, professional association, and licensing requirements that have helped shape the proposed curriculum. Indicate the effects such agencies have had on the length, content or mode of delivery, and on such budgetary requirements as staffing levels, equipment needs, and facilities. Also, describe the participation of any non-campus person or organization in the development of this proposal. Report on timetables that have been established to meet any external requirements.

No external agencies have been involved in the preparation of this proposal. Its curriculum, which is described below, aligns with the AP Computer Science Standards and the CSTA standards, but these alignments have not impacted staffing levels, equipment needs, or facilities.

G. Describe other strengths

1. Describe any special features which convey the character or personality and make the proposed course of study distinctive. (Examples might include the interest and special expertise of certain faculty members, the location and availability of unique materials or technologies at or near the campus, special relationships to other departments, organizations, or institutions, etc.)

(a) Faculty Expertise

The following professors from the School of Education and the Department of Computer and Information Sciences constitute the faculty of the Graduate Certificate in Computer Science Education program:

Chrystalla Mouza, Distinguished Professor of Teacher Education and Director of the School of Education at the University of Delaware

Dr. Chrystalla Mouza's research focuses on the design and empirical study of pre-service and in-service teacher preparation experiences on the use of technology. Much of her work focuses on urban teachers and the ways in which they can use computing with disadvantaged students as a means to improve access to digital resources. Dr. Mouza is the recipient of the 2010 Distinguished Research in Teacher Education Award from the Association of Teacher Educators and serves as Chair of the AERA Special Interest Group for Technology as an Agent of Change in Teaching and Learning. Dr. Mouza served as co-PI of the NSF Partner4CS grant.

Lori Pollock, Alumni Distinguished Professor, Computer and Information Sciences, University of Delaware

Dr. Lori Pollock brings nationally recognized experience and commitment to the teaching of computer science, graduate student mentoring, and undergraduate research. In addition to working with graduate students, she has successfully engaged and mentored 52 undergraduates in individual research (28 female and 24 male students) for 22 years and was awarded the University of Delaware Excellence in Teaching Award in 2001 and ACM's SIGSOFT Influential Educator Award in 2016. Dr. Pollock served on the 2016 CSTA Task Force to revise the K-12 CS Standards. She mentors women in computer science through her leadership in CRA-W and the Grace Hopper Celebration of Women in Computing. She was PI on the NSF BPC grant, which created a CS service-learning model, and the NSF Partner4CS grant, which implements professional development for teachers each summer.

Terrence Harvey, Associate Professor (Teaching Track), Computer and Information Sciences, University of Delaware

Dr. Terry Harvey implements research-based teaching practices for CS at UD. He has been involved with broadening participation in CS for high schools and middle schools since 2009. He uses problem-based learning to address classroom issues for under-represented groups at the University of Delaware by adopting teaching strategies that minimize group performance differences. His Software Engineering classes work with real clients, developing projects to make the world a better place. He has worked with the graduate women's student group (CISTers) and was instrumental in the group's development of outreach programs for undergraduates. He was awarded the University's Excellence in Teaching Award in 2009. He was co-PI on the NSF BPC grant, which created a CS service-learning model, and Dr. Harvey is co-PI on the NSF Partner4CS grant.

Austin Cory Bart, Assistant Professor, Computer and Information Sciences, University of Delaware

Dr. Cory Bart's goal is to create technical scaffolding that can support educational experiences for students and aid instructors. He has created and continues to create technological tools that are useful at levels from kindergarten to undergraduates. He is proficient both as a software developer and a curriculum developer. Through his experiences, Dr. Bart has come to recognize and appreciate the human element in teaching and learning, and how software can be used to support that process. Dr. Bart is involved in spearheading a number of computer science and digital education projects including the CORGIS project, BlockPy: A Dual Block/Text Python Coding Environment; Pedal: A Python Feedback Toolset; CT@VT: An introductory Computational Thinking curriculum for non-STEM majors with Data Science; PythonSneks: An open-source introductory Python curriculum for non-CS majors; and Curriculum Materials Packaging: A CSSPLICE-funded working group to standardize curriculum material packaging. He is participating faculty on the NSF Partner4CS grant.

Teomara Rutherford, Assistant Professor of Education, University of Delaware

Dr. Teomara Rutherford's research focuses on learning and motivation in digital contexts and around STEM. She examines the choices students and teachers make as they engage with learning technologies and the factors that lead students to choose to participate in STEM environments and careers. She serves as PI or Co-PI on four National Science Foundation grants focusing on student interactions with technology, most recently receiving an NSF CAREER award to examine students' in-the-moment motivations and emotions as they work within a digital mathematics learning tool.

Fred Hofstetter, Professor of Education, University of Delaware

Dr. Hofstetter coordinates the EDTC master's program in educational technology. He authored the GUIDO Ear-Training Lessons, the Atari Music Learning Series, Temporal Acuity Products' NoteBlaster note-reading game, the Random House book Making Music on Micros, the Prentice-Hall book Computer Literacy for Musicians, the Wadsworth book Multimedia Presentation Technology, and the McGraw-Hill books Multimedia Literacy, Advanced Web Design, and Internet Technologies at Work. Originally specializing in music, Dr. Hofstetter now supports projects across the curriculum and teaches general education courses in multimedia and Internet technologies. His latest book is Computational Thinking on the Internet, which grew out of his involvement as a CT Faculty Member in the NSF Project, Infusing Computational Thinking into General Education, directed by PI Lori Pollock and Co-PIs Chrystalla Mouza, Kevin Guidry, and Kathleen Pusecker. His latest software is iSeeNcode, which is a classroom observation app developed under an IES grant with PI David Coker.

(b) Resources

The Graduate Certificate in Computer Science Education program builds upon the strengths of University of Delaware by leveraging existing resources in the School of Education and the Department of Computer and Information Sciences. Do2Learn, the College of Education and Human Development (CEHD) maker space, is an area where students, faculty and staff create, educate, design, and learn about educational projects ranging from programming to 3D printing, stop-action video creation, gardening, and sewing with conductive thread.

The state-of-the-art UD MakerGym situated in Pearson Hall features equipment, tools, training and other resources for project-based instruction. It is a central hub for UD's Innovation, Design and Entrepreneurship Action (IDEA) Network. Cross-discipline collaborations are a hallmark of the new UD Maker Gym and Idea Network, which aims to spark student and faculty success by combining the emphasis on interdisciplinary cooperation with the innovation mindset that is studied, taught and put into practice by Horn Entrepreneurship.

2. Report on any anticipated collaborative arrangements with other parties (for example, inter-institutional arrangements for resource sharing, cooperative programs, clinical affiliations, etc.). The extent of the relationship should be explained and instructional or other resources to be provided by the various parties described. Any written confirmation of the commitment, including drafts of contracts or agreements, should be attached.

Because it uses existing campus resources, the Graduate Certificate in Computer Science Education does not require or depend on any third-party agreements.

III. ENROLLMENT, ADMISSIONS AND FINANCIAL AID

A. Enrollment

1. If enrollments are to be limited, e.g., by size, by pre-requisites, or by academic performance, describe the restrictions and the reasons for them. A letter of support from the Admissions Office for undergraduate programs or Office of Graduate Studies will also be helpful in projecting enrollments for the proposed program.

There are no restrictions on enrollments in the Graduate Certificate in Computer Science Education.

B. Admission Requirements

1. Describe the criteria for selecting among applicants.

- Admissions are processed on a rolling basis all throughout the year.
- Candidates apply for admission via the online application process at grad.udel.edu/apply. This process prompts applicants for the following information:

- First name, last name, phone, email.
- Current degree program (if any), expected completion date, current GPA.
- Academic transcripts of degrees earned previously.
- Brief statement explaining why the applicant seeks to earn this certificate and a discussion of previous experience with computer applications.
- Two letters of recommendation. The applicant provides names and email addresses of the recommenders, and recommendation forms are emailed directly to them from the online application. Instructions are included as to how to return the completed forms electronically.
- A resume or *curriculum vitae* that documents the applicant's prior work experience, publications, honors and awards received, and a summary of educational credentials including documentation of previous experience with computer applications.

2. Distinguish, if necessary, selection criteria between freshman, transfers from other institutions and transfers from within the University.

This is a graduate certificate that does not involve first-year undergraduates or transfers from other institutions.

3. Attach any Retention Policy that might apply and provide rationale for this policy.

To be considered in good academic standing, a student must maintain a minimum cumulative graduate grade point average (GPA) of 3.00 on a 4.00 scale each semester. To be eligible for the certificate, a student's cumulative grade point average shall be at least a 3.00 and the student's grades in courses counted toward the certificate program shall equal at least a 3.00. A grade

below a B- will not be counted toward the certificate requirements but is calculated in the student's cumulative grade point average.

Performance in graduate courses and seminars is evaluated according to the University's Grading Policy. The Graduate College monitors the academic progress of all graduate students and notifies students in writing of all academic deficiencies. The cumulative GPA after each 9-hour increment determines academic standing. In addition to the University policy regarding minimum grade point averages, some departments require graduate students to maintain certain performance minima in their programs of study in all or in particular courses. Failure to meet the stated minima may lead to academic dismissal from the program.

If a graduate student fails to make satisfactory progress toward all degree requirements, permission may be denied to continue in the degree program. At the close of each semester, winter session or summer session, in those circumstances deemed appropriate by the department or program faculty exercising its professional judgment, the faculty of each department or program may evaluate the progress of a graduate student toward meeting the academic standards of the program in which the student is enrolled. In addition to graded course work, academic standards include, but are not limited to, professional, ethical, clinical and other standards required of graduate students. In the case of dismissal, the program director is required to send a report to the Graduate College that states the faculty vote on the decision causing dismissal and the justification for this action. The Graduate College will notify a student in writing when the student is being dismissed for failure to make satisfactory progress in the program and provide procedures for the student to appeal the action.

C. Student Expenses and Financial Aid

1. Indicate the need for any required student expenses beyond the traditional book and supplies, for example, personal computer, extensive laboratory fees, etc. For Graduate and professional courses of study, indicate anticipated levels of student financial support to be provided from (a) institutional and (b) other sources.

Candidates earning the Graduate Certificate in Computer Science Education must have personal computing devices with working Internet connectivity.

IV. CURRICULUM SPECIFICS

A. Institutional Factors

1. State the degree to be awarded to those who complete the program and explain why this is the appropriate form of recognition.

Candidates who complete the curriculum described below are awarded the Graduate Certificate in Computer Science Education. Upon earning the Certificate, the student's transcript will indicate that the Graduate College has awarded the Graduate Certificate in Computer Science Education.

B. Describe the curriculum

1. Describe requirements involving total credit hours, credit hour distribution, field experiences, etc.

The Graduate Certificate in Computer Science Education requires satisfactory completion of the four (4) graduate level courses (12 credits) listed below. Each certificate program course must be completed with a grade no lower than a B-; the overall GPA of the Graduate Certificate in Computer Science Education courses must be no lower than 3.0.

All candidates must complete the following three-credit courses:

- EDUC 621: Internet Technologies (aka Computational Thinking on the Internet)
- EDUC 639: Teaching Computer Science (639 is a special topics course of which this will be the topic)
- CISC 605: Computer Science Principles

Candidates focusing on grades 9-12 must complete the following three-credit course:

- CISC 606: Foundations in Programming

Candidates focusing on grades K-8 must complete one of the following three-credit courses:

- CISC 606: Foundations in Programming
- EDUC 638: Learning Technologies Across the Curriculum
- EDUC 650: Technology and Cognition
- EDUC 611: Introduction to Educational Technology
- EDUC 777: Fostering Technology Based Collaboration
- EDUC 815: Design of Learning Environments

2. Indicate how the curriculum satisfies University of Delaware, college and departmental requirements, such as ENGL110, multicultural, college core, capstone, breadth, etc.

This is a graduate program that does not involve these undergraduate components.

3. In the Appendices, provide approval letters from affected departments for all required courses that support the proposed curriculum (unless attached to APA).

Attached please find letters of approval from the Director of the School of Education (SOE), the Chair of Computer and Information Sciences (CIS), the Dean of the College of Education and Human Development (CEHD), and the Dean of the College of Engineering (COE).

V. RESOURCES AVAILABLE

A. Learning Resources

1. Describe briefly the scope and quality of available library holdings, audio-visual materials, special equipment and collections, laboratories, clinical facilities, research facilities, etc., that are available and would directly support the proposed course of study. If appropriate, obtain a Library Assessment Statement. This section is not required if a letter of support from the library was attached to the APA.

The University of Delaware is well equipped with resources already in place to support this Graduate Certificate in Computer Science Education. The scholarly literature about teaching computer science and the applicable standards documents are all available freely online or via Delcat Discovery. As noted above, the UD MakerGym situated in Pearson Hall features equipment, tools, training and other resources for project-based instruction. The Student Multimedia Design Center (SMDC) in the Morris Library provides state-of-the-art facilities for creating projects involving interactive media.

2. Library Assessment Statement: A formal written assessment from the Director of Libraries of the Library's ability to support a proposal for a new or expanded academic degree or program is required as part of a formal proposal. The assessment statement may include but is not limited to the strength of collections; access to electronic and networked information access to collections not owned by the University of Delaware; library space and library computer requirements; language and subject capabilities of library staff; and nature of service and increased usage demands resulting from the proposed new degree/program. The request for the library assessment accompanied by details of a proposed degree or program needs to be received by the Library at least one month before the Library's assessment of a proposed degree or program is required. The Library will respond in a timely manner, usually within two weeks in order to allow time for faculty discussion of the library assessment and possible further discussion and/or interaction with the Director of Libraries, if desired.

The Library Assessment Statement has been received and is attached to this proposal.

B. Faculty / Administrative Resources

1. Describe the available program administrators and faculty expertise which support the proposed curriculum. List name, rank, specialization, nature of appointment (regular, full-time, adjunct, etc.) and highest academic degree earned by those who would be directly involved, including campus administrators. If appropriate, provide pertinent information about the professional and scholarly accomplishments, including training, courses and workshops taught, publications and projects, and other relevant documentation of the faculty.

Half of the courses in the Graduate Certificate in Computer Science Education are in the School of Education (SOE), and the other half are in the Department of Computer and Information Sciences (CIS). Because this is an interdisciplinary program, administration authority lies with the Dean of the Graduate College.

The following UD faculty work in support of the Graduate Certificate in Computer Science Education:

- Chrystalla Mouza, Distinguished Professor of Teacher Education and Director of the School of Education at the University of Delaware. Highest degree: Ed.D.
- Lori Pollock, Alumni Distinguished Professor, Computer and Information Sciences, University of Delaware. Highest degree: Ph.D.
- Terrence Harvey, Associate Professor (Teaching Track), Computer and Information Sciences, University of Delaware. Highest degree: Ph.D.
- Austin Cory Bart, Assistant Professor, Computer and Information Sciences, University of Delaware. Highest degree: Ph.D.
- Teomara Rutherford, Assistant Professor of Education, University of Delaware. Highest degree: Ph.D.
- Fred Hofstetter, Professor of Education, University of Delaware. Highest degree: Ph.D.

Summaries of the qualifications of these faculty members are printed above in the section about faculty expertise.

C. External Funding

1. Indicate any resource or source of funding external to the University which has been garnered to support the curriculum.

Although the faculty supporting this program have received numerous grants for integrating computational thinking across the curriculum and conducting research about how teachers learn to teach computer science, the Graduate Certificate in Computer Science Education does not depend upon these grants for any of its operational expenses.

VI. RESOURCES REQUIRED

A. Learning Resources

1. Identify needed additional learning resources. Indicate which of these are essential for basic implementation and whose which will produce a premiere program able to compete favorably for the highest caliber of student.

No additional learning resources are needed for the implementation of the Graduate Certificate in Computer Science Education program.

B. Personnel Resources

1. Indicate any new faculty positions required and the qualifications and subject matter specialties that will be sought. Give reasons for needing new position.

No new faculty recruitments are needed for the implementation of the Graduate Certificate in Computer Science Education.

C. Budgetary Needs

1. Attach an accounting of budgetary needs.

The Graduate Certificate in Computer Science Education does not add any new funding requirements to the operating budgets of the School of Education and the Department of Computer and Information Sciences. All four of the Certificate's courses are staffed via the University's standard faculty workload planning process.

2. Tuition Rates

The Department of Computer and Information Sciences is in a college that has differential tuition rates, whereas the School of Education does not have differential tuition. It has been agreed that for candidates admitted into the Graduate Certificate in Computer Science Education program, tuition will be charged at the CEHD adjusted graduate student tuition rate, which in 2019-20 is \$697 per credit hour.

Students electing the program's courses who are not admitted into the Graduate Certificate in Computer Science Education either pay the tuition rate charged in the student's current degree

program if the student is matriculated, or they pay the continuing education rate charged via Professional and Continuing Studies (PCS).

VII. IMPLEMENTATION AND EVALUATION

A. Implementation Plan

1. Describe how the curriculum will be implemented.

The following table shows when the courses will be offered. As this table illustrates, it is possible for candidates to earn the certificate within one calendar year.

Course Offering	Academic Term
CISC 605, Computer Science Principles	Fall
CISC 606, Foundations in Programming	Winter
EDUC 621, Internet Technologies	Spring
EDUC 639, Teaching Computer Science	Summer
EDUC 638, Learning Technologies	Fall
EDUC 650, Technology and Cognition	Spring (alternates with EDUC 815)
EDUC 611, Intro to Ed Tech	Fall
EDUC 777, Technology Based Collaboration	Spring
EDUC 815, Design of Learning Environments	Spring (alternates with EDUC 650)

B. Assessment Plan

1. Indicate how the program will be evaluated and assessed. Some measures should be quantitative, other qualitative. Success should be measured against the criteria listed including stated learning outcomes and against whatever objectives have been set forth in the first section of the proposal. Academic units are encouraged to consult with the Center for Teaching and Assessment of Learning in developing the appropriate learning outcomes, assessment criteria, and benchmarks for success.

All courses in the Graduate Certificate in Computer Science Education will participate fully in the University of Delaware's course evaluation process. Faculty will meet and discuss both the quantitative and qualitative data collected when candidates complete the online course evaluation at the end of each academic term.

To help ensure 100% participation by candidates earning the certificate, each course will contain an assignment requiring students to complete their online course evaluation. This evaluation assignment will be count for 5% of the final course grade. The wording of the assignment is as follows:

Your final assignment in this course is to evaluate it. During the last couple weeks of the course, you will receive email at your udel.edu email address instructing you when the evaluation period begins and ends. This email tells you when the course evaluation window is open. You must log on to the course evaluation system within this window of time. The Web address of the course evaluation system is www.udel.edu/course-evals. After you complete the course evaluation, your instructor will give you credit for completing it. The responses you give are completely anonymous. While your instructor will be able to see the ratings and comments, it is impossible for your instructor to identify the person who gave a certain rating or made a given comment. Once you complete the evaluation, your grade on this assignment will be an automatic A.

In addition to reviewing course evaluations at the end of each academic term, the program's faculty will evaluate end-of-course projects over time and use quantitative and qualitative data to help determine what faculty can do in these courses to help students better perform.