

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Dan Freeman phone number 831-6158

Department: Horn Program in Entrepreneurship email address freemand@udel.edu

Date: September 3, 2012

Action: add graduate certificate in Entrepreneurship & Technology Innovation
(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term 13F
(use format 04F, 05W)

Current degree _____
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: Graduate Certificate
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: Graduate Certificate in Entrepreneurship & Technology Innovation
Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising or Deleting:

Undergraduate major / Concentration: _____
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: Attached
(**Must attach** your Graduate Program Policy Statement)

Graduate Program of Study: Graduate Certificate in Entrepreneurship & Technology Innovation
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

Five new courses are proposed for the graduate certificate: ENTR654, ENTR655, ENTR656, ENTR658, & ENTR650. These courses will also serve the MBA Program’s concentration in Entrepreneurship & Technology Innovation (revision pending). Subject to the availability of faculty and approval of the program director, courses will be taught once per academic year.

Seats in ENTR655, ENTR656, & ENTR658 will be split between students from business-oriented degree programs/backgrounds and students from technical degree programs/backgrounds. This will provide all students with the opportunity to work in interdisciplinary teams to try to develop & launch high growth potential businesses (ENTR655 & ENTR656) or conduct proof of concept testing to develop specific applications for a new technology (ENTR658).

ENTR654: Introduction to Entrepreneurship

This course introduces students to a repeatable methodology for the development of viable business models. Entrepreneurial thinking, different types of startups, unique characteristics of technology markets, and business concepts germane to entrepreneurial contexts are emphasized.

ENTR 655: Startup Experience I

This course involves attempting to conceive and develop a high growth potential business. Students from technical and business backgrounds work together in teams to learn and utilize a repeatable method for developing viable business concepts. Types of businesses, opportunity recognition, ideation, and validation of business model hypotheses are emphasized. Additional core topics include: intellectual property, venture capital, business strategy, and team building.

NOTES: This course is part I of the Horn Program in Entrepreneurship’s Startup Experience. Permission from the Horn Program is required for enrollment.

ENTR 656: Startup Experience II

This course involves attempting to develop and launch a high growth potential business. Students from technical and business backgrounds work together in teams to validate their business concepts, optimize business processes and strategies, and begin to acquire customers. Challenges associated with rapid growth are also emphasized.

NOTES: This course is part II of the Horn Program in Entrepreneurship’s Startup Experience. Prerequisite: ENTR655 or permission from the Horn Program.

ENTR 658: Application Development for New Technology

This course introduces students to key issues faced by companies attempting to bring science and technology innovations to market. The course presents best practices and general, analytic frameworks for developing commercially feasible applications of new technologies. Students work together in teams to complete proof of concept testing that typically involves primary and secondary market research and an assessment of technological feasibility, value, and use for specific applications.

NOTE: Permission from the Horn Program is required for enrollment.

ENTR650: Business Accelerator for Entrepreneurial Ventures

This course focuses on helping students who have validated business concepts and/or existing businesses to accelerate the startup & growth of their companies. The course will begin with the conduct of a business model audit to determine appropriate goals/milestones for each business. Students will then be tasked with developing and implementing strategies to accomplish their goals/milestones. Students will be connected with providers of needed services, financial resources, and mentors.

NOTE: Permission from the Horn Program is required for enrollment.

In addition to these new courses, the renumbering of an existing course is proposed, with ENTR660 replacing ENTR860. The change will provide consistency in numbering across graduate offerings for the Horn Program in Entrepreneurship. The course description will remain the same:

ENTR660: This course focuses on critical financial, legal, scientific and engineering issues confronted during initial planning stages of a start-up enterprise. Students work in teams to develop a business plan for a real world business product offering.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

N/A

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter “None”)

ACCT
BUAD
FINC
CHEG
ELEG
MSEG

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The rapid pace of technological innovation continues to disrupt established industries, decreasing the availability of career opportunities with established organizations and increasing entrepreneurial opportunities. In fact, nearly all of the net new job creation in the United States is attributable to startups – businesses open less than one year.¹ The creation of the graduate certificate in entrepreneurship & technology innovation is intended to prepare students to thrive in this environment by teaching them how to recognize and ideate around opportunity, bootstrap resources, search for viable business models, bring new technology to market, and launch startups.

The timing of this proposal coincides with the recent receipt of a \$3MM gift to fund the expansion of entrepreneurial education programming on and around UD’s campus. The

¹ Kane, Tim (2010). The Importance of Startups in Job Creation and Job Destruction, Kauffman Foundation Research Series. Available at: http://www.kauffman.org/uploadedFiles/firm_formation_importance_of_startups.pdf

entrepreneurial studies program has been named - the Horn Program in Entrepreneurship – to honor the family who generously committed to making the gift.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

COURSE CATALOG LISTING

Graduate Certificate - Entrepreneurship & Technology Innovation

The graduate certificate in entrepreneurship & technology innovation serves the needs of students who may wish to launch a startup, work for an emerging technology company, or foster innovation for a large enterprise. Students pursuing the certificate will learn how to recognize and ideate around opportunity, conduct proof of concept testing, bootstrap resources, develop viable business models, bring new technologies to market, and launch and grow new ventures. Due to capacity limitations, approval from the Horn Program in Entrepreneurship is needed for enrollment in the courses comprising the required immersive experience - the Startup Experience (ENTR655 & ENTR656). Applications to the certificate program will be accepted on a rolling basis; however, the application deadline for enrollment in the Startup Experience for a given academic year is October 15.

CURRICULUM - Requirements

CORE REQUIREMENT – Choose one of the following 3

ENTR654	Introduction to Entrepreneurship
ENTR660	High Tech Entrepreneurship
MSEG625	Entrepreneurship and Risk: Meeting the Challenges
ELEG660	High Technology Entrepreneurship

IMMERSIVE EXPERIENCE – the Startup Experience 6

ENTR655	Startup Experience I
ENTR656	Startup Experience II

ELECTIVE - choose any one of the following: 3

ACCT820	Financial Statement Analysis and Valuation^
ACCT/FINC857	Private Equity/Venture Financing^
BUAD871	Managing for Creativity and Innovation^
BUAD883	Product & Price Management^
BUAD889	Business-to-Business Marketing^
CHEG595	Intellectual Property
ENTR650	Business Accelerator for Entrepreneurial Ventures
ENTR658	Application Development for New Technology
FINC850	Financial Management
FINC861	Financial Modeling and Valuation^

^ Designates a course with prerequisite requirements that may need to be satisfied prior to

enrollment. Please consult course descriptions in the academic catalog for details.

CREDITS TOTAL A MINIMUM OF

12

LISTING OF PREREQUISITES FOR ELECTIVE COURSES

(This listing will not be included in the course catalog)

ACCT820 Financial Statement Analysis and Valuation

Prerequisite: ACCT800

ACCT/FINC857 Private Equity/Venture Financing

Prerequisite: ACCT800 and FINC850 or equivalent

BUAD871 Managing for Creativity and Innovation

Prerequisite: BUAD870

BUAD883 Product & Price Management

Prerequisite: BUAD880

BUAD889 Business-to-Business Marketing

Prerequisite: BUAD880

FINC861 Financial Modeling and Valuation

Prerequisite: FINC850

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson *Da Juan* Date 9/18/2012

Dean of College _____ Date _____

Chairperson, College Curriculum Committee _____ Date _____

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

Vice Provost for Academic Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Revised 02/09/2009 /khs

Proposal for New Graduate Certificate

Entrepreneurship & Technology Innovation

I. DESCRIPTION

The graduate certificate in entrepreneurship & technology innovation is designed to serve the needs of students from technical and other degree programs who may wish to launch a startup, work for an emerging technology company, or foster innovation for a large enterprise. This degree program will include a large measure of experiential learning to provide the specialized knowledge and skills needed to succeed in innovation-related career paths, including understanding how to recognize and ideate around opportunity, conduct proof of concept testing, bootstrap resources, develop viable business models, bring new technology to market, and launch & grow new ventures.

II. RATIONALE AND DEMAND

A. Institutional factors.

1. The Path to Prominence strategic plan calls for the University to follow five guiding principles: Delaware first, diversity, partnership, engagement, and impact. The creation of this certificate puts Delaware first by providing students with the knowledge, skills, and resources needed to pursue opportunity, promote economic prosperity, and improve social wellbeing in Delaware communities. It encourages diversity by creating a level playing field where the best ideas tend to win; it fosters partnership by bringing people and organizations together to solve important problems; it elicits engagement by students, faculty, staff, alumni, and others by enabling them to make the world they want to live in; and it generates impact by helping to bring innovations to market and creating jobs. The creation of the certificate is also consistent with President Harker's vision for the Science, Technology, and Advanced Research (STAR) campus, which sees the sprawling 272-acre parcel emerging as a major center for University-enabled research, innovation and commercialization over the next decade.
2. The planning process for the certificate began in January, 2012. It has included a site visit to the University of Arizona (which boasts at top-5 entrepreneurship program), consultation with dozens of seasoned entrepreneurs and members of the entrepreneurial ecosystem, and careful consideration of state-of-the-art pedagogies for entrepreneurial education. It has utilized lessons learned from the longstanding High Technology Entrepreneurship course (ENTR660/ELEG660/MSEG625), experimental courses related to the University's undergraduate minor in entrepreneurial studies, and a pilot program relating to technology commercialization undertaken in partnership with the University's Office of Economic Innovation & Partnership (OEIP) and faculty from the College of Engineering. Input has also been sought from a broad array of faculty and academic advisors in the Lerner College of Business & Economics and the College of Engineering. Formal development of this proposal began in earnest in late June, 2012 with the commitment of a \$3MM gift to the Lerner College of Business & Economics' Horn Program in Entrepreneurship (newly named) to expand entrepreneurial education opportunities for University of Delaware students.
3. The proposed curricula will have minimal impact on other programs, particularly the MBA, through small increases in the number of enrolled students. As the certificate

will have limited capacity (maximum capacity will be 40 or less per year for the first two years that the certificate is offered), and the affected units service the much larger MBA program, these impacts will be minor.

4. Scientific discoveries and inventions by University of Delaware faculty have resulted in a strong repository of intellectual property; however, very little of this property is making it into the marketplace. This certificate would help to promote the commercialization of this technology. Also, many leading graduate programs in engineering and the sciences have strong and successful entrepreneurial components (e.g., Stanford & MIT) and many others have added entrepreneurship to their programming. The creation of this certificate will help to maintain the University's appeal among prospective graduate students and faculty.

B. Student demand

1. We anticipate demand will exceed our planned enrollment target of 25-30 students per year. This expectation is based on the rapidly growing interest in entrepreneurial education, and enrollment data from the "High Technology Entrepreneurship" course, which represents a longstanding and successful partnership between the Lerner College and the College of Engineering (the course is cross-listed and co-taught). National statistics also support this expectation as the top 10 graduate entrepreneurship programs enroll more than 7,000 students (an average of more than 700 students per program).²
2. The program is intended to meet the needs of graduate students with an interest in pursuing entrepreneurial education part-time. These students may be from any MA, MS, or Ph.D. program offered at the University of Delaware.

C. Transferability

To pursue the certificate, students must be concurrently enrolled in another degree program (MA, MS, or Ph.D.). Courses used toward the requirements of the primary degree may also be used to satisfy requirements as appropriate for the certificate in entrepreneurship & technology innovation.

D. Access to graduate and professional programs

N/A

E. Demand and employment factors

The certificate is meant to prepare students for general career opportunities related to entrepreneurship & technology innovation. Given the structural changes in the U.S. and other major world economies, such opportunities are highly likely to continue to increase relative to other, more traditional types of employment.

F. Regional, state, and national factors

1. There are no comparable courses of study in the state of Delaware. The region is home to three top-25 graduate programs in entrepreneurship, including University of Maryland, Temple University, and Drexel University. The University of Pennsylvania/Wharton School also boasts a strong program. The proposed certificate differs from degrees offered by these institutions in three notable ways: (1) it is based

² <http://www.entrepreneur.com/topcolleges/grad/0.html> [accessed September 3, 2012]

on a state of the art curriculum pertaining to customer development and lean startup methodology, (2) it purposefully combines students from business and technical backgrounds and degree programs to promote interdisciplinary collaboration, and (3) it *utilizes a heavy dose of experiential learning*. These aspects of the proposed curriculum will better prepare students for launching their own businesses, working for emerging technology companies, or fostering innovation for large enterprises.

2. The Association to Advance Collegiate Schools of Business (AACSB) serves as the accrediting body. Standards for AACSB accreditation provide great flexibility in fashioning curricula provided that curricular contents assure the preparation of students as appropriate to the learning goals of the program. For the proposed certificate these goals include the acquisition of knowledge and skills related to: recognizing and ideating around opportunity, conducting proof of concept testing, developing viable business models, bootstrapping necessary resources, bringing new technology to market, and launching new ventures.

G. Describe other strengths

1. More than 3000 University of Delaware alumni own or have founded businesses, and nearly all who have been contacted by the Horn Program have indicated a willingness to share their time, talent, or treasure with students.
2. Faculty from the University of Delaware regularly produce scientific discoveries and inventions that have commercialization potential.
3. The University of Delaware is located in close proximity to major pharmaceutical, material science, and chemical companies. The state is also known for innovations related to green energy, financial services, and education reform.
4. The Horn Program has an established network of more than 80 supportive entrepreneurs, venture capitalists, angel investors, lawyers, accountants, and other service providers who are engaged with the program.

III. ENROLLMENT, ADMISSIONS AND FINANCIAL AID

A. Enrollment

The initial enrollment goal is to admit 25 students per year into the program. Enrollment will be limited to 40 students per year effective upon the approval of this proposal (i.e., for AY 2013-14). This restriction is necessary due to the immersive, limited capacity nature of the Startup Experience, which forms the backbone of the certificate. The courses comprising the Startup Experience are resource intensive, with low student to faculty ratios and considerable expenditures on enrichment funding (e.g., for prominent guest speakers, hands-on learning activities, etc).

B. Admission Requirements

1. Students with a demonstrated interest in entrepreneurship and/or technology innovation and strong records of academic achievement will be selected for admission. Please see the graduate program policy for details.

C. Student Expenses and Financial Aid

Students will be responsible for their own tuition, and may need to seek seed funding if they choose to actively pursue the launch of a startup. The Horn Program offers a variety of opportunities to compete for such funds and is working to establish additional mechanisms of support.

IV. CURRICULUM SPECIFICS

A. Institutional Factors

Students completing this program will receive the designation “Graduate Certificate in Entrepreneurship & Technology Innovation” on their transcript. This is the appropriate form of recognition since it requires only 12 credits of graduate coursework.

B. Describe the curriculum

The certificate requires 12 credits of graduate level course work consisting of:

1. Three credits from a core course (Introduction to Entrepreneurship & Technology Innovation OR High Technology Entrepreneurship).
2. Six credits from the immersive Startup Experience.
3. Three credits chosen from a list of 10 electives.

Please see the attached graduate program policy for full details of the curriculum.

V. RESOURCES AVAILABLE

A. Learning Resources

Students enrolled in the certificate will have access to experienced entrepreneurial mentors and resources associated with the Horn Program’s Venture Development Center (VDC), which serves as a learning laboratory for entrepreneurial students. These resources include books, computing resources, and other facilities. A relocation and expansion of the VDC is planned for Summer 2013. In addition, the Horn Program will be undertaking the creation of a comprehensive online resource exchange for entrepreneurs during the 2012-14 academic years. No special library resources are needed.

B. Faculty / Administrative Resources

Dan Freeman, Associate Professor of Marketing, serves as Director, Horn Program in Entrepreneurship. Lerner College supports an administered load for Prof. Freeman, allowing him to spend time on program administration. Two additional fulltime administrators will be in place for the 2012-13 academic year – an Assistant Director and an Administrative Assistant IV. Both will participate in the administration of the certificate program (through advising, scheduling, marketing, etc.) and other components of the Horn Program.

C. External Funding

A \$3MM commitment from an alumnus has been secured to support the Horn Program. A portion of this gift will be used to develop curriculum and provide resources for the

certificate. Support for the certificate will be sustainable, as the gift will result in a \$2MM+ endowment for the program (by 2017).

VI. RESOURCES REQUIRED

A. Learning Resources

The Horn Program has secured the resources needed to build a premier entrepreneurship program. This includes funding to expand and improve the physical location of the Venture Development Center and more fully develop a resource ecosystem to support student startups.

B. Personnel Resources

The proposal calls for the creation of five new courses. Subject to the availability of faculty and approval of the program director, four of these courses will be taught just once per year. Entrepreneurship and technology innovation can be effectively taught by people who have experience in launching businesses, bringing innovations to market, and technical experts (in specific domains/industries). Therefore, these courses can be staffed by either part-time faculty or fulltime faculty who primarily teach in other programs (i.e., in a home discipline such as marketing, MIS, or chemical engineering). As a result, no new fulltime faculty will be needed to support the creation of the certificate.

C. Budgetary Needs

Tuition revenues are expected to more than cover instructional and administrative costs associated with the certificate. The Horn Program in Entrepreneurship will also provide a minimum of \$20,000 per year to support enrichment experiences for students enrolled in the immersive experience courses.

VII. IMPLEMENTATION AND EVALUATION

A. Implementation Plan

All courses for the certificate will be in place by fall 2013. The program will begin marketing the certificate as soon as approval is obtained.

B. Assessment Plan

Learning goals for the certificate include:

1. acquisition of knowledge and skills germane to developing viable business models for startups
2. acquisition of knowledge and skills germane to bringing new technologies to market

Major deliverables from the Startup Experience courses will be used to assess the degree to which these learning goals have been accomplished. In addition, the one-, five- and 10-year career histories of program graduates will be tracked to assess the efficacy of the program in preparing students to launch startups, work for emerging technology companies, and foster innovation for large enterprises. These measures will be supplemented by surveying alumni and other members of the entrepreneurial community about the perceptions of students who have successfully completed the certificate.

VIII. APPENDICES

A. AACSB accreditation standards

B. Letters of Collaborative Agreement – N/A

C. Transfer/Retention Policy – N/A

D. Letters of Approval from Contributing Departments

- Email of support from Scott Jones, ACCT
- Email of support from Tom Becker, BUAD
- Letter of support from Helen Bowers, FINC
- Email of support from Bramie Lenhoff, CHEG
- Email of support from Errol Lloyd, ECE
- Email of support from David Martin, MSEG

E. Other Pertinent Documents

- Letter of Support from Rick Andrews, Deputy Dean, Lerner College of Business & Economics
- Graduate Program Policy

APPENDIX A

AACSB Accreditation Standards

AACSB maintains a complex set of 21 accreditation standards, all of which apply at the institutional level (i.e., Lerner College of Business & Economics). Standards 1-5 relate to the strategic management of the school and whether “a school articulates its mission and action items as a guide to its view of the future, planned evolution, infrastructure, and use of resources.” Standards 6-14 relate to participants and whether “a direct link exists between a school’s mission, the characteristic of students served by the educational programs, the composition and qualifications of the faculty members providing the programs, and the overall quality of the school.” Standards 15-21 relate to the assurance of learning and whether student learning is the central activity, with clear goals and striving for continuous improvement. The source of these quotes is:

<http://www.aacsb.edu/accreditation/business/standards/> [accessed September 2, 2012]

This site also provides detailed descriptions for each of the 21 standards (listed below).

Strategic Management Standards

Standard 1: Mission Statement
Standard 2: Intellectual Contributions
Standard 3: Student Mission
Standard 4: Continuous Improvement Objectives
Standard 5: Financial Strategies

Participant Standards

Standard 6: Student Admission
Standard 7: Student Retention
Standard 8: Staff Sufficiency-Student Support
Standard 9: Faculty Sufficiency
Standard 10: Faculty qualifications
Standard 11: Faculty Management and Support
Standard 12: Aggregate Faculty and Staff Educational Responsibility
Standard 13: Individual faculty Educational Responsibility
Standard 14: Student Educational Responsibility

Assurance of Learning Standards

Standard 15: Management of Curricula
Standard 16: Undergraduate Learning Goals
Standard 17: Undergraduate Educational Level
Standard 18: Master’s Level General Management Learning Goals
Standard 19: Specialized Master’s Degree Learning Goals
Standard 20: Master’s Educational Level
Standard 21: Doctoral Learning Goals

APPENDIX D
Letters of Approval from Contributing Departments

NOTE: In the process of gathering letters. Support for the inclusion of courses in the curriculum for the certificate will be confirmed prior to calling for a vote by the full faculty of Lerner College.

- Email of support from Scott Jones, ACCT
- Email of support from Tom Becker, BUAD
- Letter of support from Helen Bowers, FINC
- Email of support from Bramie Lenhoff, CHEG
- Email of support from Errol Lloyd, ECE
- Email of support from David Martin, MSEG

From: Jones, Scott K.
Sent: Tuesday, October 02, 2012 11:13 AM
To: Freeman, Daniel J
Subject: RE: Approval for inclusion of courses

Dan:

The Department of Accounting and MIS is pleased to support the proposed MBA concentration and certificate program in entrepreneurship as electives at the graduate level, as requested below. The following courses may be included

ACCT 820 when offered
ACCT 857 when offered

Scott Jones, PhD
Professor & Chairperson
Department of Accounting & Management Information Systems
206 Purnell Hall
University of Delaware
Newark, DE 19716
302-831-8278

From: Freeman, Daniel J
Sent: Friday, September 28, 2012 10:53 AM
To: Jones, Scott K.
Subject: Approval for inclusion of courses

Dear Scott,

The Horn Program in Entrepreneurship is seeking to revise the existing MBA concentration in Entrepreneurship and create a new graduate certificate in Entrepreneurship & Technology commercialization.

Two accounting courses – ACCT820 and ACCT857 – are included as elective options in both proposals (attached for your convenience). I am writing to formally request your approval to include these courses in the revised MBA Concentration in Entrepreneurship & Technology Commercialization AND the new graduate certificate in Entrepreneurship & Technology Commercialization.

Thank you very much for your consideration.
Dan

Dan Freeman, Ph.D.
Director, Horn Program in Entrepreneurship
University of Delaware
302.831.6158 (O)
302.383.9484 (M)
www.udel.edu/e-studies

From: Becker, Thomas E
Sent: Thursday, October 04, 2012 10:27 AM
To: Freeman, Daniel J
Subject: New Graduate Certificate in Entrepreneurship & Technology Commercialization

Hi Dan,

This is to grant permission for the inclusion of BUAD courses in the curriculum for the new graduate certificated in Entrepreneurship & Technology Commercialization. This includes the three electives listed in the proposal (BUAD 871, 883, and 889). This permission is based on the understanding that enrollment in the certificate program will be limited to 40 students per year for the first two years and that the projected impact on enrollments in the courses will be minor. Because it is not yet known how many students will actually enroll in the BUAD electives, and given the potential for growth in this program, I ask that you regularly communicate with me (perhaps near the beginning of each semester) regarding enrollments in the certificate program.

Best wishes,

Tom

Tom Becker | Chairperson and Professor
Department of Business Administration
237 Alfred Lerner Hall | Newark, DE 19716
P: 302-831-6822 | **F:** 302-831-4196 | **E:** beckert@udel.edu
Web: www.buec.udel.edu/beckert/



**Alfred Lerner College
of Business & Economics**

DEPARTMENT OF FINANCE

306 Purnell Hall
Newark, DE 19716-2712
Phone: 302-831-1484
Fax: 302-831-3061

TO: Dan Freeman, Director
Horn Program in Entrepreneurship

FROM: Helen Bowers, Associate Professor and Chair
Department of Finance

Helen Bowers

DATE: September 30, 2012

RE: Letter of support for the proposed graduate certificate in Entrepreneurship &
Technology Commercialization

The Department of Finance strongly supports the proposed graduate certificate in Entrepreneurship & Technology Commercialization.

We agree to make FINC850 Financial Management, FINC857 Private Equity and FINC861 Financial Modeling and Valuation available as an elective courses to students in the pursuing the Entrepreneurship & Technology Commercialization graduate certificate who have met the prerequisites.

We appreciate the opportunity to work with the Horn Program in Entrepreneurship on offering the Entrepreneurship & Technology Commercialization graduate certificate.

From: A. M. Lenhoff [mailto:lenhoff@UDel.Edu]
Sent: Wednesday, October 03, 2012 10:35 PM
To: Freeman, Daniel J
Subject: Re: Permission to include CHEG595

Dear Dr. Freeman,

I've checked with Al Uebler, who teaches CHEG 595, and he is fine with having additional students in the class within this structure. I'm not sure if any students from the MBA concentration have taken the course, and if so, what they felt about its value and its level, but in any event we're fine to go ahead.

Best regards,
Bramie Lenhoff

On 9/30/12 8:15 AM, Freeman, Daniel J wrote:
Dear Dr. Lenhoff,

The Horn Program in Entrepreneurship is seeking to revise the existing MBA concentration in Entrepreneurship and create a new graduate certificate in Entrepreneurship & Technology commercialization. Both proposals are attached for your convenience.

I am writing to formally request your approval to continue to include CHEG595 as an elective option of the MBA Concentration AND to add CHEG595 as an elective option for the new graduate certificate in Entrepreneurship & Technology Commercialization.

We anticipate that the inclusion of CHEG595 in these curricula will have only a minor impact on enrollment in the course, perhaps adding a handful of students, as the total enrollment across both programs is likely remain below 50 per year for the foreseeable future and students will have a broad array of alternatives to the course.

Please let me know if you have any questions or concerns. Thank you very much for your consideration.

Dan

Dan Freeman, Ph.D.
Director, Horn Program in Entrepreneurship
University of Delaware
302.831.6158 (O)
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www.udel.edu/e-studies

From: Barner, Kenneth E.
Sent: Sunday, September 30, 2012 6:29 PM
To: Freeman, Daniel J; barner@ece.udel.edu
Cc: Goossen, Keith W
Subject: RE: Permission to include ELEG660

Dan:

The ECE Department approves the inclusion of the course noted below in the new graduate certificate program. Good luck with these new offerings.

Ken

From: Freeman, Daniel J
Sent: Sunday, September 30, 2012 8:37 AM
To: barner@ece.udel.edu
Cc: Barner, Kenneth E.; Goossen, Keith W
Subject: Permission to include ELEG660

Dear Ken,

The Horn Program in Entrepreneurship is seeking to create a new graduate certificate in Entrepreneurship & Technology Commercialization. The certificate is intended to serve the needs of students from any graduate program who may have an interest in entrepreneurship. The draft proposal is attached.

I am writing to formally request your approval to include ELEG660 as one of two options students will have for satisfying a core requirement for the certificate – i.e., they will be able to choose from an Intro to ENTR course OR from one of the cross-listed sections of High Technology ENTR (ELEG660/ENTR660/MSEG625) to satisfy the core requirement. My hope is that the inclusion of ELEG660 will best serve the needs of students from CoE who may have interest in the program by allowing them to enroll in a CoE-sanctioned course listing.

Please note: The Intro to ENTR course (ENTR654) is a new course that is being developed to support Lerner's new *online* MBA program; thus, it targets a very different audience than ELEG660 and it will not be offered to on-campus students during semesters when ELEG660 is offered.

We anticipate that the inclusion of ELEG660 will have a negligible impact on enrollment in the course, as all CoE students who have an interest in ENTR are likely to enroll in the course already.

Please let me know if you have any questions or concerns. Thank you very much for your consideration.

Dan

Dan Freeman, Ph.D.
Director, Horn Program in Entrepreneurship
University of Delaware
302.831.6158 (O)
302.383.9484 (M)
www.udel.edu/e-studies

From: Martin, David C.
Sent: Friday, October 05, 2012 8:03 AM
To: Freeman, Daniel J
Cc: Rabolt, John F
Subject: Re: Permission to Include MSEG625

Dan, MSEG 625 is a perfectly appropriate course for this certificate program you are considering. I'm happy to support its use in your curriculum.

David C. Martin, Ph.D.
Karl W. and Renate Böer Professor and Chair
Materials Science and Engineering
Professor of Biomedical Engineering
The University of Delaware
201C DuPont Hall
Newark, DE 19716
(302) 831-2062 Office
(734) 276-0409 Mobile
(508) 256-8352 FAX
miltydcm Skype
Google Scholar: <http://tinyurl.com/98geuvt>
<http://www.mseg.udel.edu>
<http://cubic.mseg.udel.edu>
<http://udel.edu/~milty>
milty@udel.edu

From: Freeman, Daniel J
Sent: Monday, October 01, 2012 8:19 PM
To: Martin, David C.
Cc: Rabolt, John F (rabolt@udel.edu)
Subject: Permission to Include MSEG625

Dear Dr. Martin,

The Horn Program in Entrepreneurship is seeking to create a new graduate certificate in Entrepreneurship & Technology Commercialization. The certificate is intended to serve the needs of students from any graduate program who may have an interest in entrepreneurship. The draft proposal is attached.

I am writing to formally request your approval to include MSEG625 as one of two options students will have for satisfying a core requirement for the certificate – i.e., they will be able to choose from an Intro to ENTR course OR from one of the cross-listed sections of Entrepreneurship and Risk: Meeting the Challenges (ELEG660/ENTR660/MSEG625) to satisfy the core requirement. My hope is that the inclusion of MSEG625 will best serve the needs of students from CoE who may have interest in the program by allowing them to enroll in a CoE-sanctioned course listing.

Please note: The Intro to ENTR course (ENTR654) is a new course that is being developed to support Lerner's new *online*MBA program; thus, it targets a very different audience than MSEG625 and it will not be offered to on-campus students during semesters when MSEG625 is offered.

We anticipate that the inclusion of MSEG625 will have a negligible impact on enrollment in the course, as all CoE students who have an interest in ENTR are likely to enroll in the course already.

Please let me know if you have any questions or concerns. Thank you very much for your consideration.
Dan

Dan Freeman, Ph.D.

APPENDIX E
Other pertinent documents

Letter of Support from Rick Andrews, Deputy Dean, Lerner College of Business & Economics



Alfred Lerner College
of Business & Economics

OFFICE OF THE DEAN

303 Alfred Lerner Hall
University of Delaware
Newark, Delaware 19716-2701
Ph: 302/831-2551
Fax: 302/831-6750

October 6, 2012

The Alfred Lerner College of Business and Economics is pleased to support the proposed 12-credit hour graduate certificate program in Entrepreneurship & Technology Commercialization, which will become a major component in the newly named and revamped Horn Program in Entrepreneurship.

The Entrepreneurship & Technology Commercialization graduate certificate program will not be housed within a particular department in the Lerner College. That being the case, the College will be responsible, in coordination with the program director, for ensuring that resources for staffing the program are sufficient to maintain the standards for accreditation set forth by the Associate to Advance Collegiate Schools of Business (AACSB).

The proposed enrollment of 25-30 students per year poses no resourcing problems for the College.

Sincerely,

A handwritten signature in black ink that reads 'Rick L. Andrews'.

Dr. Rick L. Andrews
Deputy Dean

Graduate Certificate in Entrepreneurship & Technology Innovation

Program Policy

Part I. Program History

A) Statement of purpose and expectations for graduate study

The rapid pace of technological innovation can be expected to continue to disrupt established industries, decreasing the availability of career opportunities with established organizations and increasing entrepreneurial opportunities. The Graduate Certificate in Entrepreneurship & Technology Innovation seeks to prepare students to take advantage of entrepreneurial opportunities by launching startups, helping emerging technology companies to gain traction, and driving innovation in large organizations.

B) Date of establishment – temporary status beginning July 1, 2013 (pending)

C) Degrees offered – Graduate Certificate in Entrepreneurship & Technology Innovation

Part II. Admission

A) Admission requirements

Admission to the Certificate in Entrepreneurship & Technology Innovation is competitive and subject to the capacity limitations of the Horn Program in Entrepreneurship. Matriculated graduate students in all doctoral and masters degree programs at the University of Delaware are eligible to apply for admission. Applications should be submitted to the Director of the Horn Program in Entrepreneurship. A face-to-face interview with program faculty and staff is required for consideration.

Criteria for admission include: (1) motivation and/or demonstrated commitment to the pursuit of entrepreneurial education, (2) record of achievement, and (3) existing knowledge and skill base. Approval by the student's academic advisor (for the masters or doctoral degree) is required for students receiving a stipend or tuition support from the University.

B) Prior degree requirements – BA or BS degree.

C) Application deadlines

Applications will be considered on a rolling basis. However, applications must be received by October 15th to guarantee the opportunity to participate in the Startup Experience during the current academic year.

D) Special competencies needed – N/A

E) Admission categories

Students are admitted into a cohort that will participate in the next available Startup Experience, which begins with ENTR655 in Spring semester. Once admitted, students are allowed to change their cohort only with written approval from the Director of the Horn Program in Entrepreneurship. Capacity limitations are the primary criterion used to determine whether requests are approved.

F) Other documents required

In addition to completing a required application form, applications for the Graduate Certificate in Entrepreneurship & Technology Innovation require the submission of a brief essay indicating

why the student is interested in pursuing the certificate. Names and contact information for two references and a signed recommendation from the student's academic advisor are also required.

G) University statement

Admission to the Graduate Certificate in Entrepreneurship & Technology Innovation program is competitive. Those who meet stated requirements are not guaranteed admission, nor are those who fail to meet all of the requirements necessarily precluded from admission if they offer other appropriate strengths.

Part III. Academic

A. Degree requirements

1. List course requirements

The Graduate Certificate in Entrepreneurship & Technology Innovation requires 12 credits of graduate level course work.

- a.** Three credits must be chosen from a core course: ENTR650, ENTR660, ELEG660, or MSEG625.

ENTR650	Introduction to Entrepreneurship
ENTR660	High Tech Entrepreneurship
ELEG660	High Technology Entrepreneurship
MSEG625	Entrepreneurship and Risk: Meeting the Challenges

- b.** Six credits from the immersive Startup Experience are required:

ENTR655	Startup Experience I
ENTR656	Startup Experience II

- c.** Three credits must be chosen from the following list of electives:

ACCT820	Financial Statement Analysis and Valuation [^]
ACCT/FINC857	Private Equity/Venture Financing [^]
BUAD871	Managing for Creativity and Innovation [^]
BUAD883	Product & Price Management [^]
BUAD889	Business-to-Business Marketing [^]
CHEG595	Intellectual Property
ENTR650	Business Accelerator for Entrepreneurial Ventures
ENTR658	Application Development for New Technology
FINC850	Financial Management
FINC861	Financial Modeling and Valuation [^]

[^] Designates a course with prerequisite requirements that may need to be satisfied prior to enrollment. Please consult course descriptions in the academic catalog for details.

2. Advisement

All students develop a plan of study in consultation with their advisor upon matriculation into the Graduate Certificate in Entrepreneurship & Technology Innovation Program.

3. Give procedure for petitions for variance in degree requirements (e.g., course

substitution policies, completion deadlines, etc.)

All petitions for course substitutions and variances in the completion deadlines must be made to the Director of the Horn Program in Entrepreneurship.

4. Define any minimums in courses that are different from University policy

Only graduate courses completed with a grade of B- or higher are counted toward the fulfillment of requirements for the certificate. Students receiving grades lower than B- in courses required for the certificate are subject to automatic dismissal from the program. However, they may file an appeal to the Director of the Horn Program for approval to retake the course and remain in the program. If the appeal is not approved, the Director of the Horn Program will recommend to the Office of Graduate Studies that the student be dismissed from the certificate program.

5. Identify any courses which may not be used towards the degree

Only courses listed in the curriculum may count towards the degree unless a variance is granted by the Director of the Horn Program in Entrepreneurship.

6. Identify expectations of facility of expression in English (oral and written) as part of the degree requirements

There are no specific requirements; however, successful completion of the certificate program requires fluency in both written and spoken English.

B. Committees for exams, thesis, or dissertations

The certificate has no thesis or dissertation requirements. However, students who wish to include an entrepreneurship & technology innovation component in their thesis or dissertation may seek participation from program faculty on their committee, subject to the approval of their advisor.

C. Timetable and definition of satisfactory progress towards the degree**1. Academic load**

The Graduate Certificate in Entrepreneurship & Technology Innovation is a part-time program that is intended to be pursued along with another graduate degree. As such, the only enrollment requirement is that matriculated students must enroll in at least one class per academic year and the certificate must be completed within five years.

Progress toward the fulfillment of requirements is reviewed at the end of every academic year for all students in the program.

2. Grade requirements (general and specific)

Only graduate courses completed with a grade of B- or higher are counted toward the fulfillment of requirements for the certificate. Students receiving grades lower than B- in courses required for the certificate are subject to automatic dismissal from the program. However, they may file an appeal to the Director of the Horn Program for approval to retake the course and remain in the program. If the appeal is not approved, the Director of the Horn Program will recommend to the Office of Graduate Studies that the student be dismissed from the certificate program.

3. Thesis/dissertation progress timetable guidelines - N/A**4. Thesis/dissertation defense guidelines - N/A****5. Forms required**

Upon completion of requirements for the certificate, the Director of the Horn Program will submit the approved plan of study form to the Office of Graduate and Professional Education for

audit. The University will state on the student's transcript that the Graduate Certificate in Entrepreneurship & Technology Innovation was awarded. No diploma for the certificate program is awarded.

6. Identify the consequence for failure to make satisfactory progress

Students failing to make satisfactory progress towards fulfillment of certificate requirements will be identified by the Director of the Horn Program in Entrepreneurship in consultation with the student's academic advisor/program director, and may be dismissed from the certificate program. Students who feel that they have been graded inappropriately or receive what they perceive as an unfair evaluation by a faculty member or the Director of the Horn Program may file grievances in accordance with University of Delaware policies. Students are encouraged to contact the Director of the Horn Program prior to filing a formal grievance in an effort to resolve the situation informally.

Part IV. Assessment Plan

Learning goals for the certificate include:

1. acquisition of knowledge and skills germane to developing viable business models for startups
2. acquisition of knowledge and skills germane to bringing new technologies to market

Major deliverables from the immersive Startup Experience courses will be used to assess the degree to which these learning goals have been accomplished. In addition, the one-, five- and 10-year career histories of program graduates will be tracked to assess the efficacy of the program in preparing students to launch startups, work for emerging technology companies, and foster innovation for large enterprises. These measures will be supplemented by surveying alumni and other members of the entrepreneurial community about the perceptions of students who have successfully completed the certificate.

Part V. Financial Aid

Students enrolled in the certificate program are responsible for their own tuition and living expenses. The student's primary degree program, the Horn Program, and the University of Delaware's Office of Financial Aid will provide assistance in identifying suitable fellowships, grants, and loans to help finance their education.

Part VI. Departmental Operations

A. General student responsibilities

1. Access to student records

Students wishing to review their file must submit a written request to the Director of the Horn Program at least 24 hours in advance. Students must review the file in the presence of departmental faculty or staff and are not permitted to remove a file from the Venture Development Center but may photocopy documents from their folder. Access to student records is provided in accordance with the Family Educational Rights and Privacy Act.

2. Standards of Student Conduct

a. Academic honesty

All graduate students are subject to University of Delaware regulations specified in the University Code of Conduct.

b. Laboratory Safety and Research Regulations

Graduate students performing laboratory research are subject to all University regulations regarding safety, use of human subjects and animals, and hazardous/radioactive material use and disposal. These guidelines may be found in the University of Delaware Policies and Procedures Manual.

c. Contact information

It is the responsibility of all students to ensure that their contact information on file with the University is current (mailing address, phone number, email address). It is also the student's responsibility to regularly monitor their email, phone, and mail for important notices regarding their enrollment.

B. Departmental facilities

Student pursuing the Graduate Certificate in Entrepreneurship & Technology Innovation are eligible to utilize the Venture Development Center (VDC) in completing projects for program-related courses. They may also apply to become licensees of the VDC.