

Doctor of Professional Studies In Computing



The Doctor of Professional Studies (DPS) in computing provides information technology (IT) professionals a unique opportunity to pursue a doctoral degree while continuing to work full time. It supports interdisciplinary study among the computing disciplines and applied research in one or more of them, providing a background highly valued by industry. It is an innovative post-master's doctoral program structured to meet the needs of the practicing computing professional.

The DPS in computing, while advanced in content and rigorous in its demands, can be distinguished from the Doctor of Philosophy (PhD) in that its focus is the advancement of the practice of computing through applied research and development. The DPS is a professional doctorate that integrates computing and professional cultures. It is considered by the National Science Foundation to be a research doctorate equivalent to the PhD.

An Innovative Learning Community

The DPS program provides an intellectually stimulating learning environment in which cutting-edge and emerging computing and information technology can be discussed and researched in an open-forum style. Students and faculty are encouraged to share their experiences and ideas with everyone in the program. Each fall, a class of 20 students is admitted, bringing professional expertise in specialized areas of computing to the learning community. The class proceeds through the program as a cohort, and is expected to graduate together after three years.

The long duration of traditional doctoral programs often stems from the difficulty of completing dissertation research in a timely manner. Unlike other programs, Pace DPS students focus on research beginning in the first semester of study under the guidance of faculty advisers. As students progress through the program's seminars, readings, and discussions, they are exposed to emerging issues in computing and information technology. In many cases, these research seminars help lay a direct foundation for a dissertation or indirectly stimulate interest in an area that ultimately leads to a dissertation. The program has built-in coaching and mentoring by faculty advisers and, most importantly, by the students themselves.

A Professionally Diverse Student Body

Entering students' careers extend from 6 to 33 years, with an average among students of about thirteen years. Professional activities include software development, telecommunications and IT management, data management, and Internet engineering with employers such as Verizon, IBM, Avon Products, ITT, Computer Associates, MetLife, Dannon USA, JPMorgan Chase, Philips Research, AT&T, E*Trade, Brookhaven National Labs, Oracle, Museum of Natural History, Pfizer, Sothebys, and the NY Federal Reserve. Many of our DPS students live and work in the greater New York metropolitan area, but others travel from Boston, California, Pennsylvania, Washington, DC, and Canada for the on-site sessions that occur monthly, five times a semester, on Friday evening and all day Saturday. In between the on-site sessions, students and faculty interact over the Internet.

"The program is helping me prepare for large-scale technological change on a national and global level. It's very collaborative, and the breadth of thinking by the faculty and doctoral students is giving me the advanced skills I need to help my company grow. I can drive the notions of Fearless Change, "Agile," and "Retrospectives" with my IS/IT department. This is one of the few doctoral programs around for working professionals. It's the one I needed."

– Jeff Hutchinson, DPS '10
Chief Information Officer

"The program is wonderfully constructed. I was exposed to and was made knowledgeable in most of the major areas of computing and was able to apply the learning immediately. I continue to be a part of an evolving social network of people who come from a multitude of different industries, disciplines, and backgrounds, and upon whom I can call as both friends and colleagues."

– Carl Abrams '06, DPS
Financial Services Sector
Business Manager, IBM
Research

"I used my research in Agile Development Methods to manage an enterprise-wide project, completing it on time and on budget. This success led to added responsibilities and more visibility by top executives at my firm."

– Robert Zandoli '06, DPS
Vice President, Enterprise
Technology, MetLife

"The DPS program advanced my understanding and overall perspective of the profession, my depth of knowledge and, most tangibly, advanced my career at IBM. I became the go to person in my group. There were many times when I took something I learned on a Saturday and immediately worked it into a presentation for Monday."

– Mark Ritzmann '06, DPS
Executive, Information
Warehousing Group, IBM

Curriculum Structure

The DPS in computing is a 48-credit program, which assumes the prior completion of a master's degree in computing or a closely related discipline. Research commences in the first year when students begin an 18-credit integrative core and a 6-credit research seminar sequence, and continues through the 12-credit advanced elective sequence in the second year. A 12-credit dissertation completes the 3-year program.

FIRST YEAR OF STUDY

Software Design and Implementation
DCS 801, 803, 6 credits total

Software Systems Development and Engineering
DCS 821, 823, 6 credits total

These courses address the environment in which software systems are built and used. Critical and emerging issues in computer science, information systems, software and Internet engineering, and their relationship to software development and design provide the major theme. The main focus is on agile software development practices—being, thinking, and doing agile. Students develop projects working in small, distributed agile teams. Project development explores cutting-edge agile object-oriented development methodologies such as extreme programming (XP), Scrum, and open source, and is implemented in Java. Pattern-oriented software architecture as an approach to software development is explored. Emphasis is placed on practice oriented software engineering and information systems, tool rich working environments, team development efforts, cost performance trade-offs in business contexts, and tasks other than source-code development.

Data Communications, Networking, and Internet
DCS 834, 835, 6 credits total

These courses progress from the basics of data, signals, and information transmission to principles of computer networking and the operation of current and evolving Internet protocols, providing a foundation for planning and management of network facilities and design and implementation of Internet based applications. The ISO Reference Model and the TCP/IP protocols form the framework for introducing Internet facilities, services, protocols, and applications. Students investigate new network technologies and applications in small team projects.

Research Seminar
DCS 891 A, B, C, D, E, F

Fall, Spring, Summer; 1–3 credits each

Students are introduced to a variety of methods and styles of computing research through presentations by faculty and industry professionals and by studying selected research documents. Students learn to identify new computing research problems and to formulate research proposals in preparation for dissertation research.

DCS 891 A, B, C are taken in the first year of study

DCS 891 D, E, F are taken in the second year

SECOND YEAR OF STUDY

Topics in Computing and Information Technology
DCS 860, 861

Fall, Spring; 2 or 3 credits (6 credits per semester)

These courses consist of topics of current interest to students. Cutting-edge issues and emerging information technology areas are explored. A major goal for these courses is to understand the technological life cycle of emerging information technologies, their issues and potential impact. Visiting experts in computing and IT discuss their current research and development activities.

Topics include: Small computing devices—pen computing, hand-writing and speech recognition, data security and information assurance; Internet performance and high-volume Web service technologies; data mining and data modeling; pervasive computing, XML technologies and Web services; software patterns; distributed components and middleware; artificial intelligence and genetic algorithms; virtual reality.

THIRD YEAR OF STUDY

Dissertation for DPS in Computing
DCS 990, 991

Fall, Spring; 6 credits each

The dissertation is an original, rigorous, independent applied research product that may advance knowledge, improve professional practice, and/or contribute to the understanding of computing. The dissertation must be of sufficient strength to be able to distill from it a paper worthy of publication in a refereed journal or conference proceeding. Although publication is not a requirement for completing the doctoral degree, students are required to prepare a paper to submit for publication.

Examples of dissertation areas include: Agile methods, Pattern Languages, Visualization of Data, Genetic Algorithms, Distributed Systems Architecture, Software Component Integration, Web Personalization, Software Testing, Data Security, Information Assurance, Web Content Management, Knowledge Management, Software Product Quality and CMMI, Cybercrime, Biometrics, Pattern Recognition, Robotics.

Calendar of Class Meetings and Activities

Fall 2010–Spring 2013

Fall 2010	Spring 2011	Summer 2011
August 27-28*	January 21-22	May 20-21
September 10-13	February 18-19	June 17-18
October 8-9	March 18-19	July 15-16
October 29-30	April 15-16	August 5-6
November 19-20	May 6-7	
December 17-18		

* Optional OO-Agile- Java workshop

Fall 2011	Spring 2012	Summer 2012
September 9-10	January 20-21	July 21
Sept 30, Oct 1	February 17-18	
October 28-29	March 16-17	
November 18-19	April 13-14	
December 16-17	May 4-5	

Fall 2012	Spring 2013
September 29	February 2
November 10	March 9
December 8	April 27

Tuition and Payment Schedule

Class of 2013 (Entering Fall 2010)

Total Tuition**		Payment Schedule	
Year 1	\$ 21,000	Upon acceptance	\$ 200
Year 2	\$ 21,000	Fall 2010	\$ 10,300
Year 3	\$ 21,000	Spring 2011***	\$ 10,500
	\$ 63,000	Fall 2011	\$ 10,500
		Spring 2012***	\$ 10,500
		Fall 2012	\$ 10,500
		Spring 2013	\$ 10,500
			\$ 63,000

** Proposed tuition schedule includes total cost of program except for travel and lodging

*** Includes summer tuition