

**DOCTOR OF PHILOSOPHY (PH.D.)  
IN COMPUTER SCIENCE**  
ACADEMIC POLICIES AND PROGRAM PROCEDURES

2017-2018 ACADEMIC YEAR

**Seidenberg**  
School of Computer Science  
and Information Systems



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## **DOCTOR OF PHILOSOPHY (PH.D.) IN COMPUTER SCIENCE**

The Ph.D. program is open to a few highly qualified students. The Ph.D. is a research degree and is not granted solely after any prescribed period of study or after accrual of a specified number of credits of coursework. The degree is only granted on evidence of general proficiency and an ability for independent investigation as demonstrated in a dissertation presenting original research or creative scholarship. The Ph.D. is most appropriate for those who intend to teach and/or to do research in a university, or in a government or commercial research laboratory.

### **ADMISSIONS**

To be admitted to the Ph.D. program a student must have a Master's degree in computer science. In rare cases, a Master's degree in another field, such as mathematics or computer engineering, may be substituted.

Students are required to submit the scores of the Graduate Record Examination (GRE) as part of their application materials for review by the Ph.D. Program Committee. Experience has shown that GRE scores are a great assistance to the Ph.D. Program Committee in making admissions decisions.

Prospective students whose native language is not English must also provide evidence of English language proficiency. A TOEFL score of 600 (paper-based) or above typically indicates an ability to successfully meet the written and spoken communication requirements of graduate level courses, the Department's preliminary examinations, and the dissertation.

Before an applicant can be admitted to study, he/she must be sponsored by a member of the full-time faculty. A faculty member interested in this role informs the Ph.D. Program Committee of his/her willingness to work closely with the student in the conduct of his/her Ph.D. program during the review process of an application. (A student may actively solicit faculty sponsorship; in addition, the Ph.D. Program Committee independently identifies possible faculty sponsors as part of the review process.) The basis for this working relationship lies in a mutuality of research interests. If a faculty sponsor cannot be found for an otherwise qualified applicant, such applicant will be so informed and will not be admitted to the program.

It should be understood that in some circumstances – changes in interests, faculty retirements or departures, or other reasons – a tutorial relationship might be rendered unworkable. If this should occur, the student takes the initiative to find a

replacement. In addition, every effort will be made by the Ph.D. Program Committee to help the student find a satisfactory replacement for the original adviser among the members of the Department. If, however, a new sponsor cannot be found for a student, the student will be required to leave the program.

### **Fall Semester Admission Deadlines**

Applicants who wish to be included in the University's financial aid process must have their completed application to the Department by December 1. The application deadline for all applicants is March 1. Late applicants will be reviewed on a space available basis. Applicants who meet the March 1 deadline will be notified no later than April 15.

### **Spring Semester Admission Deadlines**

Applications for commencement of full-time graduate study in the Spring semester shall be made by Oct. 15. Applicants will be notified no later than Nov. 15.

## **DEGREE REQUIREMENTS**

The award of a Doctor of Philosophy in Computer Science degree indicates that a student has attained mastery of a field and has demonstrated the capacity to perform independent scholarly research. The following degree requirements are mandatory of all doctoral candidates:

1. Ph.D. students must complete 44 credits hours of courses in Computer Science. This includes 28 credits in Advanced Requirements; 4 credits in Research Seminar courses; 12 credits in Dissertation Research/Writing courses.
2. The Program of Study must be completed with a 3.5 GPA or better for all academic work attempted in Graduate Studies.
3. The applicant for a Doctor of Philosophy degree must pass 3 qualifying exams.
4. All candidates must pass a dissertation proposal oral exam.
5. A dissertation is required of all candidates.
6. All candidates must pass a final oral examination. This is to be a defense of the dissertation and a demonstration of the candidate's mastery of his/her field.
7. Ordinarily the equivalent of three years of full-time graduate study is a minimum. However, the candidate must complete all requirements for the degree within four calendar years after passing the qualifying examination.
8. A time limit of 10 years is set for completion of all degree requirements. Under extenuating circumstances, a request for extension of this time may be submitted for consideration by the department chair or dean of the school.

## **RESEARCH SEMINARS**

### **CS804 - Independent Research**

Course Description: The student will work closely with the advisor to conduct literature survey, identify a research problem with solution methodologies, and create a clear research plan for the dissertation.

Students registering for this course must first seek approval from a faculty member who has agreed to be their course advisor.

Course Rotation: Fall and Spring

### **CS806 - Dissertation Preparation**

Course Description: Student will work closely with the advisor to develop the dissertation research proposal for defense.

Students who have completed necessary coursework but required to register as a full time student can register for this class.

Students registering for this course must first seek approval from a faculty member who has agreed to be their course advisor.

Course Rotation: Fall and Spring.

## **RESIDENCY**

For Ph.D. students, two consecutive semesters in a single academic year (exclusive of summer session) must be spent in residence on the New York or Pleasantville campus. This residency period must be subsequent to admission to candidacy. Ten (10) credit hours of program course work must be completed in each of these semesters.

## **REQUIREMENTS FOR ADMISSION TO Ph.D. CANDIDACY**

Upon completion of the course and research paper requirements, a student is admitted to candidacy for the PhD degree. It is highly recommended that each student complete the candidacy requirement by the end of the second year.

Students who are enrolled in Doctoral Candidacy are considered full-time students if they register for 10 credits per semester unless they have less than 10 credits remaining to complete. Enrollment in Doctoral Candidacy status must be continuously maintained year-round (i.e. Fall, Spring, and Summer) until the degree is awarded.

## RESEARCH/SURVEY PAPER

To demonstrate research ability, each student is required to write a research or survey paper in an area of specialty under the supervision of a faculty advisor and submit it to the PhD Committee. Typically, the paper should not exceed 15 pages. A student is considered to have fulfilled the paper requirement if:

1. The paper has been submitted to a selective conference.
2. The student has made substantial contribution to the paper.
3. The advisor has endorsed the paper with a written statement indicating the student's contribution.
4. The PhD committee has voted on a positive recommendation.

## QUALIFYING EXAMS

To ensure that students in the Ph.D. program are well-prepared for research in their chosen areas, **Ph.D. qualification** (also known as "admission to candidacy") must be earned by passing three written qualifying exams with a grade of A and passing an oral dissertation proposal defense. The exams test the student's mastery of knowledge in three areas of Computer Science. The dissertation proposal oral exam tests a student's research readiness in a specific research problem. Each student must pass the qualifying exam for Advanced Algorithms (at the end of CS801). Each student can choose the other two qualifying exams at the end of relevant Ph.D. courses. If a student fails in a qualifying exam, the student must repeat the same exam in its following offering. If a student fails a qualifying exam twice, the student must leave the program.

**IMPORTANT:** A dissertation proposal defense cannot be scheduled until the student has passed the required three qualifying exams.

Before a student can take a written qualifying exam, prior approval must be received from the program coordinator by the 6<sup>th</sup> week of the semester by submitting a [Qualifying Exam Approval Form](#). Once the approval is received, the instructor will be notified of approval.

### **Qualifying Exams (need to pass THREE qualifying exams):**

CS 801 Advanced Algorithms (Required)  
CS 823 Advanced Database  
CS 827 Advanced Artificial Intelligence  
CS 855 Pattern Recognition and Machine Learning  
CS 896A Computer Vision

# THE DISSERTATION

Upon successful completion of the research proposed in the dissertation proposal, the student will prepare a dissertation for approval by the Doctoral Thesis Committee. The dissertation must contain results of extensive research and make an original contribution to the field. The work should give evidence of the student's ability to carry out independent research. It is expected that the dissertation should be of sufficient quality to merit publication in a reputable journal.

## **Dissertation Advisor**

The dissertation advisor should be a Pace University full-time faculty member whose role is to guide doctoral students in research, helping select coursework, as well as shaping, refining and directing the students' choice of sub-discipline in which they will be examined or on which they will write a dissertation. Students generally choose advisors based on their areas of interest within their discipline, their desire to work closely with particular graduate faculty, and the willingness and availability of those faculty to work with them. Students should submit an [Advisor Approval Form](#) once a faculty member has agreed to serve as advisor.

## **Dissertation Committee**

Each student, with the assistance of his or her advisor, shall establish a dissertation committee, of which the sponsor is the chairperson. The student is advised to do this while completing the qualifying examinations. Relatively early in the student's program, the dissertation committee should be consulted by the student – especially when planning future course work and developing the research proposal. Students should submit the [Committee Member Approval Form](#) once the committee members have been established.

This committee will consist of a minimum of three members who are full-time faculty in the Seidenberg School. Committee members from outside the University may be added if there is justification that they bring scientific expertise to the committee that is unique to the current research being performed by faculty at Pace University. The Director of the Ph.D. program must approve external committee members.

At the time the committee is established, the student's advisor shall notify the Ph.D. Program Committee of the committee's structure (names and departments of committee members). At any time after this committee has been established, the student may, if he or she wishes, restructure the committee. To do so the student must file with the Ph.D. Program Committee the [Change in Advisor or Committee Member Approval Form](#), giving the names and signatures of all members of the original and proposed committees. The student will work closely with this

committee to define his or her specific area of specialization and dissertation topic. The committee should also be consulted about coursework related both to the substantive area and methods appropriate to the dissertation. The dissertation committee will conduct an oral review and defense of both the dissertation proposal and the finished dissertation.

### **Preparation and Defense of the Dissertation Proposal**

The dissertation proposal defines the nature of the student's dissertation research, and must satisfy the members of the student's dissertation committee that the candidate is capable of undertaking original research appropriate to the field of computer science. At the discretion of the committee, the proposal defense can also be used to examine the student on a broader substantive area from which the dissertation is being developed. The dissertation proposal must describe:

- The rationale for, and the specific aims of, the proposed research;
- The basic assumptions on which the proposal is based and the hypotheses which are to be developed and/or tested (as this is appropriate, given the methodological structure of the dissertation);
- The anticipated contribution of the study to the field; and
- The general design of the research, including the procedures and methods to be used and the techniques to be applied to the analysis of research materials.

A dissertation proposal defense will not be scheduled until student has passed all of the 3 qualifying exams.

At least four weeks prior to the dissertation proposal defense, the candidate must submit an [Application for the Dissertation Proposal of Defense Form](#) with advisor's signature, to the program coordinator, who will be responsible for scheduling the defense.

When the candidate passes the dissertation proposal defense, this fact is recorded on a [Dissertation Proposal Defense Evaluation Form](#) provided by the Ph.D. Program Committee, with the committee members' signatures on it, and kept on file.

### **Dissertation Defense**

The oral dissertation defense is administered by the student's full Ph.D. Committee. The candidate must submit the [Dissertation Pre- Defense Approval Form](#). The time and place are negotiated by student with the members of his/her committee, though ultimately the responsibility for the time and place is with the



major professor. The final oral defense of the dissertation is an open examination – students, non-dissertation committee faculty, friends and family of the dissertator, and others *may* attend. However, attendance does not allow for participation in the dissertation examination process by anyone other than members of the student's Ph.D. Committee. When the candidate passes the examination, which requires a majority vote of the Committee, this fact is recorded on the [Dissertation Defense Evaluation Form](#) provided by the School.

## **PROGRAM ADMINISTRATION – GENERAL TOPICS**

### **Academic Integrity**

Students must accept the responsibility to be honest and to respect ethical standards in meeting their academic assignments and requirements. Integrity in academic life requires that students demonstrate intellectual and academic achievement independent of all assistance except that authorized by the instructor.

The use of an outside source in any academic paper, report or submission for academic credit without the appropriate acknowledgement is plagiarism. It is also academically dishonest to submit anything in electronic form as one's own that is the work, either fully or in part, of someone else. It is unethical to present as one's own 'work, the ideas, words or representations of another without the proper indication of the source. Therefore, it is the student's responsibility to give credit to any quotation, idea or data borrowed from an outside source.

Students who fail to meet the responsibility for academic integrity subject themselves to sanctions ranging from a reduction in grade or failure in the assignment or course in which the offense occurred to suspension, dismissal or expulsion from the University. Students penalized for failing to maintain academic integrity who wish to appeal such action may petition the department chair for a hearing on the matter.

### **General Policies**

Academic policies which apply to all Pace University students are described in the General Information section of the Pace University [catalog](#). Each student is responsible for knowing and complying with the academic policies and regulations established for the Ph.D. program. The program cannot assume responsibility for problems resulting from failure to follow the policies stated in this catalog. Similarly, students are responsible for all deadlines, rules, and regulations stated in the Schedule of Courses.

### **Minimum Grade Point Average**

Students must maintain a minimum GPA of 3.5 overall and a grade of B or better in each of the courses satisfying the Ph.D. course requirements. You may repeat a

course once for no more than three courses if you do not receive a B or better. Failure to maintain a 3.5 overall average may result in suspension from the Ph.D. program.

### **Graduate Grading System**

A letter grade is awarded as a measure of student performance only by the faculty member assigned to a particular course and section. The spectrum of letter grades ranges from A through C and F; in addition, certain plus and minus refinements to the letter grades are available to allow faculty greater flexibility in the measurement of student performance. Specific grading policies are established by the instructor in a given course.

Each letter grade translates into a numerical equivalent or quality points as cited below:

#### **Grade/Quality Points**

A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
F	.0
I-F	.0
I	.0

I - Incomplete. Used at the discretion of the instructor due to absence from final examination or when required course assignments are not completed. "I" becomes a failure and a grade of I-F is assigned to the course unless removed within six weeks after the conclusion of the semester. If, however, in the judgment of the instructor of the course, deficiencies are so extensive that they cannot be made up within the allotted time period of six weeks, a grade of F will be assigned immediately at the end of the semester.

### **Repeat Grades**

Grades earned in courses that are repeated are averaged in the same manner as that described under the heading "Graduate Grading System" and all grades remain on the transcript. A student may request, however, on a one-time basis, that the repeat passing grade for a course in which the grade of "F" (or "I-F") was originally received be the only grade for the course averaged in the calculation of the QPA.

However, both grades (the original "F" or "I-F" and the repeat grade) will be shown on the transcript. Transcripts will be footnoted to indicate that the QPA has been recomputed. Students wishing to apply for re-computation of their QPA must file a written request with the Graduate Registrar's Office. (Specific Departments may not allow repeat grades). Students must complete the [Re-Compute Grade Point Average Application](#).

### **Change of Grade**

No grade will be changed beyond six months after the end of the semester in which the course was taken. No grade will be changed or recomputed nor will withdrawals be permitted after a degree has been awarded.

### **Probation and Suspension**

If a student's cumulative grade-point average falls below 3.5, the student will be placed on academic probation and normally given one semester in which to achieve the required 3.5 cumulative average. Failure to achieve the required GPA within the allotted time period will result in suspension. If a student fails a PhD course, the program director or coordinator may suspend the student without providing a probationary period.

In addition, the student's advisor in consultation with the program director will determine if a student is making satisfactory progress each year before the student submits an accepted dissertation proposal. If the student has not demonstrated adequate progress or passed three qualifying exams, the student can be placed on probation. This determination will be made with respect to the student's enrollment status (full-time or part-time) and other factors. If the student is deficient in completion of program requirements, the advisor in consultation with the program director will determine a remedial course of action. Failure to follow the course of action within the allotted time period may result in suspension.

### **Academic Appeals**

A candidate who is dismissed for academic reasons may appeal the dismissal within 30 calendar days from the date of the dismissal letter. Candidates may not register for or attend classes while an appeal is pending. The Dean of the School is responsible for deciding the merits of an appeal. The appeal must be in writing and addressed to the Dean. The appeal should indicate in sufficient detail that (1) the candidate's poor academic performance is due to unusual or non-recurring events, (2) there will be no recurrence of these events, and (3) the candidate has taken or will take appropriate action to ensure that his or her cumulative grade point average will reach the minimum 3.5 in no more than one semester. A candidate may submit additional written evidence or include any other information which may be helpful to the Dean in reaching a determination. The Dean of the School will consider the letter of appeal, any supporting evidence supplied by the

candidate, and the candidate's past academic record in reaching its decision. If the appeal is accepted by the Dean, the candidate will be placed on probation. All decisions made by the Dean are final.

### **Annual Performance review**

At the end of each academic year, after the end of the Spring semester, the Ph.D. governing committee will ask for input from all faculty associated with the Ph.D. degree. All students will receive evaluation and advice about their progress. This may include specific recommendations of courses and exams to take, and may range from a very positive recommendation to continue in the program to a negative recommendation of probation or dismissal.

### **Leave of Absence**

For various reasons, students sometimes find it necessary or desirable to interrupt their enrollment at Pace University. The reasons for a leave of absence include, but are not limited to, the following:

- To pursue academic endeavors elsewhere such as studying or conducting research at another institution.
- Financial hardship.
- An internship.
- A serious medical condition of the student's spouse, domestic partner, sibling, parent, child or step-child.
- Employment obligations.

A leave of absence pursuant to this Leave of Absence Policy may commence during a semester or prior to the beginning of a semester and is limited to two consecutive semesters, excluding summer semesters. A student, who is unable to complete the semester and applies for a leave of absence, must also withdraw from the courses in which he or she currently is enrolled and will receive a "W" for each course from which the student withdrew. Although the "W" grades will appear on the student's transcript, they will not affect the student's cumulative quality grade point average. In addition, the student will be subject to the Tuition Cancellation Policy and certain financial aid rules and procedures. (Further information about the impact of a leave of absence on a student's financial aid may be found [here](#).)

Students who are contemplating a leave of absence are encouraged to speak with their academic advisor prior to submitting a Leave of Absence Application. Academic advisors can provide information about the effect of a leave of absence on such issues as course sequencing and graduation date. After meeting with an academic advisor, in order to apply for a leave of absence, a student must:

- Complete a [Leave of Absence Application](#).
- Submit the completed Leave of Absence Application for approval to the chair of the department in which the student's major is housed, or the assistant or associate dean of the school or college in which the student is enrolled, or the student's academic advisor.
- Submit the completed Leave of Absence Application with the signature of approval to the Office of Student Assistance.
- Provide whatever additional documentation the University may require concerning the student's request for a leave of absence.

For more information, please refer to the [Graduate Catalog](#).

### **Resumption of Study**

Resuming candidates who have not been in attendance for one or more semesters (not including the summer sessions) and have not maintained matriculation nor have attended another graduate institution must [apply](#) to the Office of Student Assistance and obtain approval from the academic department at least two months before the opening of the semester. The candidate will be notified in writing whether or not the request for resumption of studies has been approved. In general, the requirements for graduation are those listed in the catalog when the candidate originally enrolled. If a candidate interrupts studies for a period of more than three years, the candidate must comply with the requirements of the catalog in effect when the semester study is resumed. In addition, courses 5 years or older will be formally reviewed and may not be applied to the resuming candidate's degree program. Course work 10 years or older will not be accepted.

For more information, please refer to the [Graduate Catalog](#).

### **Course Waivers and Transfers**

Course waivers to the qualifying coursework requirements are granted only in special conditions. For example, a student who already holds an M.S. in Computer Science from Pace University may ask to transfer up to 12 credits of advanced coursework.

### **Academic Advisement**

Academic advisement concerning programs of study, courses and relationship of graduate work to career goals is available to all candidates. Ph.D. candidates are advised and mentored by the Program Coordinator.

### **Course Load**

Candidates may not register for more than 10 graduate credits in the fall and spring semesters, or more than one graduate course during the summer.

All international students studying at Pace University on student visas are required to enroll for and complete a full-time course load each fall and spring semester in order to comply with the regulations of the U.S. Immigration Service.

### **Full-time Status**

Candidates are considered full-time if they satisfy one of the following:

1. Enrolled for a minimum of 9 credit hours per semester.
2. Registered in a full-time academic internship as verified by the department.
3. Working full time on a dissertation and are maintaining matriculation.

### **International Students**

All international students studying at Pace University on student visas are required to enroll for a full time program each fall and spring semester in order to comply with the regulations of the U.S. Immigration Service. The following are exceptions approved by the Department of Homeland Security to deviate from full-time enrollment.

- It is your last semester before you graduate and you have less than 12 (UG) or 9 (GR) credits left to finish your degree.
- It is your first semester in the U.S., and you are experiencing difficulties with U.S teaching methods or reading requirements.
- You have a medical condition preventing you from being a full-time student (medical note is required).
- You are a graduate student and your program offers special curriculum, which provide full-time equivalency (FTE) (details on Deviation Form, part B)
- You are working on your thesis or dissertation.
- If you have any other reason, please speak to an ISS International Student Advisor (ISA).

### **Maintenance of Matriculation**

Doctoral students are required to submit a [Maintaining Matriculation](#) form for each major semester (Fall and Spring) that they are pursuing a degree, but are not enrolled in any credit-bearing courses. This is a degree requirement, as detailed in the University Catalogue, and students who neglect to Maintain Matriculation by the due date indicated above will be subject to the late registration fee of \$110.

Students who Maintain Matriculation will have access to the following University benefits:

- Access to their Pace e-mail account
- Access to the library resources

- Access to all University Facilities
- Access to Blackboard

### **Graduate Assistantships**

Students in the Seidenberg School of CSIS are eligible for graduate assistantships. We encourage all accepted students to apply for these positions. Due to their highly competitive nature, we urge applicants to send in their form quickly. Graduate students can apply through our [web application](#).

A limited number of graduate assistantships are offered to highly qualified, full-time students. Criteria are as follows:

- GRE—Minimum score: 156 (Verbal); 165 (Quantitative)
- Undergraduate Cumulative Quality Point Average (QPA)- Preferred score: 3.5
- Technical Background-You may be required to interview in person for an assistantship position, at which point your managerial experience will be reviewed and evaluated.

Eligible students are awarded assistantships on either a half-time (six credits + stipend) or full-time (9–12 credits + stipend) basis and require the recipient to work 10 or 20 hours, respectively, performing academic research or providing technical support for a project, program, or department. The Seidenberg School continues to support its graduate assistants until graduation, provided that the student performs his/her responsibilities satisfactorily and maintains a QPA of 3.5; therefore, the number of openings varies from semester to semester.

Students receiving graduate assistantships (teaching, research or service) shall be provided adequate training and shall be required to understand and adhere to University policies related to these areas. The performance of teaching, research and service duties by such students shall be periodically evaluated. Students with teaching assistantships shall be evaluated annually.

### **Career Services for International Students**

While the Career Services program cannot guarantee employment, international students are eligible to work off campus in study-related positions with authorization from Career Services and the Office of International Students and Scholars. For more information, go to [Career Services](#).

- You must be fully matriculated in a degree program as a full-time student (9 credits).
- International students on an F-1 visa must be enrolled full-time for one full academic year (two consecutive academic semesters) before they are eligible to participate in a paid/unpaid off-campus internship/Curricular Practical Training (CPT).



## Education Training

Each PhD student is expected to go through some higher education training through volunteering work as undergraduate/master student mentors or project supervisors, working as graduate assistants, or teaching courses.

The program coordinator is to be notified of completed services to be noted on student's worksheet for end of semester assessment.

## Library Resources

In order to gain library access to databases, please begin at the Pace Library Homepage: <http://pace.edu/library> and click on databases. You will be asked to identify yourself. Please type in your username (Pace email without @pace.edu) and your password that corresponds to your Pace email account. If you do not know your Pace email password, you will need to contact the ITS HELP DESK <http://www.pace.edu/its/account-access-and-help/its-help-desk> they can help you reset your password.

At the database menu, choose subject: **Computer Science** for a pull-down list of all library databases in the discipline of Computer Science. Many of our databases have full-text articles. If you are in a database and you do not see the full-text of an article, please click on the link SEARCH FOR ITEM. If you end up at the inter-library loan page, follow these steps:

1) Check **Google Scholar** to see if you can find the article for free: <https://scholar.google.com> by copying and pasting the article title and journal title into the search box. Look for PDFs of the article. If you hit a paywall do not pay for the article, request an inter-library loan.

2) Inter-library Loan (**ILLiad**) Request nonPace Library articles, books and dissertations. Register and create an account by following this link:

<https://pace.illiad.oclc.org/illiad/logon.html>

You must have a barcode number to set up an account. If you do not know your barcode number, please send me an email, using your PACE EMAIL ACCOUNT and I shall send you your barcode. Your home library is *Mortola Library* and your home campus is *Pleasantville*.

Should you like access to the **DPS in Computing Dissertations**, please follow this link to our Library Catalog:

<http://libguides.pace.edu/c.php?g=371330&p=2510038>

and choose **Digital Collections** and then **DPS Dissertations**.

The password is: **digitalthesis**

To view your **Computer Science Doctoral Library Research Guide**:

<http://libguides.pace.edu/DPSComputing>

Students and faculty have comprehensive (24/7) access to **IEEE Xplore IEL**. To access, please link to the Pace Library homepage: <http://pace.edu/library> and choose “databases” from the top menu tab.



Once on the database page, choose “I” for IEEE and then choose “*IEEE Xplore IEL*.” If you are accessing remotely you will have to identify yourself by logging in with your Pace portal username and password.

***IEEE Xplore IEL*** is a powerful resource and has a top-notch search engine where you can search for more than four-million full-text documents from some of the world's most highly cited publications in electrical engineering, computer science, telecommunications and electronics.

The content in *IEEE Xplore IEL* comprises:

- 170+ journals
- 1,400+ conference proceedings
- 5,100+ technical standards
- Approximately 2,000 eBooks
- 400+ educational courses

Approximately 20,000 new documents are added to *IEEE Xplore* each month.

Please contact Michelle Lang, Graduate Librarian at [mlang@pace.edu](mailto:mlang@pace.edu) should you have any questions about Pace Library access or research or if you need a one-on-one research consultation.