Foreword

This catalog is intended to detail the University’s academic programs, policies and services for use by current undergraduate students, faculty, and administrators. We appreciate that applicants, prospective students, and many other people will read this material, as well, for some understanding of University programs and culture.

Information in the catalog is current as of August 2017; the next Catalog will be published in August 2018. In the interim, new courses will be announced in the course schedules which are usually available in November and April and on the Web (www.cmu.edu/hub).

The program requirements and academic policies set forth in this Catalog are subject to change. As a consequence, students are expected to consult with their individual college or department for the most up-to-date information about program requirements, and should consult the University’s policy website for the most current statements of University policy.

Any changes or updated information from any member of the campus community should be directed to John Papinchak, University Registrar.

Laurie Weingart
Interim Provost

Jonathan D. Samuels, Assistant Registrar for Records & Undergraduate Catalog Editor
John R. Papinchak, University Registrar
Published August 17, 2017

Statement of Assurance

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the university ombudsman, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-1018.


Contents

- Campus-Wide Policies, Services and Options (http://coursecatalog.web.cmu.edu/servicesandoptions)
  - Look at Carnegie Mellon (http://coursecatalog.web.cmu.edu/servicesandoptions/lookatcarnegiemellon)
  - Degrees Offered (http://coursecatalog.web.cmu.edu/servicesandoptions/degreesoffered)
  - Undergraduate Admission (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateadmission)
  - Enrollment Services (http://coursecatalog.web.cmu.edu/servicesandoptions/enrollmentservices)
  - Summer Opportunities (http://coursecatalog.web.cmu.edu/servicesandoptions/summeropportunities)
  - Intercollege Programs (http://coursecatalog.web.cmu.edu/servicesandoptions/intercollegeprograms)
    - BXA Intercollege Degree Programs (http://coursecatalog.web.cmu.edu/servicesandoptions/intercollegeprograms/bxaintercollege)
  - University Policies (http://coursecatalog.web.cmu.edu/servicesandoptions/universitypolicies)
  - Undergraduate Academic Regulations (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateacademicregulations)
  - University Services (http://coursecatalog.web.cmu.edu/servicesandoptions/universityservices)
  - Undergraduate Options (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions)
  - Department of Athletics and Physical Education (http://coursecatalog.web.cmu.edu/servicesandoptions/departmentofathleticsandphysicaleducation)
  - Reserve Officers’ Training Corps (ROTC) (http://coursecatalog.web.cmu.edu/servicesandoptions/rotc)
  - Degrees Offered (http://coursecatalog.web.cmu.edu/servicesandoptions/degreesoffered)
  - College of Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology)
    - CIT Designated Minors (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/undergraduatedesignatedminors)
    - CIT Minors for Non-Engineering Students (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/minorsfornonengineeringstudents)
    - Department of Biomedical Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofbiomedicalengineering)
    - Department of Chemical Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofchemicalengineering)
    - Department of Civil and Environmental Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofcivilandenvironmentalengineering)
    - Department of Electrical and Computer Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofelectricalandcomputerengineering)
    - Department of Engineering and Public Policy (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofengineeringandpublicpolicy)
    - Department of Materials Science and Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/materialsscienceengineering)
    - Department of Mechanical Engineering (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/departmentofmechanicalengineering)
    - CIT Interdisciplinary Courses (http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/courses)
  - College of Fine Arts (http://coursecatalog.web.cmu.edu/collegeoffinearts)
    - CFA Minors (http://coursecatalog.web.cmu.edu/collegeoffinearts/cfaminors)
    - School of Architecture (http://coursecatalog.web.cmu.edu/collegeoffinearts/schoolofarchitecture)
    - School of Art (http://coursecatalog.web.cmu.edu/collegeoffinearts/schoolofart)
• School of Design (http://coursecatalog.web.cmu.edu/schoolofdesign)
• School of Drama (http://coursecatalog.web.cmu.edu/schoolofdrama)
• School of Music (http://coursecatalog.web.cmu.edu/schoolofmusic)
• CFA Interdisciplinary Courses (http://coursecatalog.web.cmu.edu/courses)
• Dietrich College of Humanities and Social Sciences (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences)
  • DC Interdisciplinary Majors (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/interdepartmentalmajors)
  • DC Interdisciplinary Minors (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/interdepartmentalminors)
• Undergraduate Economics Program (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/undergraduateeconomicsprogram)
  • Department of English (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofenglish)
  • Department of History (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofhistory)
  • The Major in Information Systems (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/informationsystems)
• Department of Modern Languages (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departementofmodernlanguages)
• Department of Philosophy (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofphilosophy)
• Institute for Politics and Strategy (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/instituteforpoliticsandstrategy)
• Department of Psychology (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofpsychology)
• Department of Social and Decision Sciences (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofsocialanddecisionsciences)
• Department of Statistics and Data Science (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/departmentofstatistics)
• Dietrich College Interdisciplinary Courses (http://coursecatalog.web.cmu.edu/dietrichcollegeofhumanitiesandsocialsciences/courses)
• H. John Heinz III College (http://coursecatalog.web.cmu.edu/hjohnheinzicollege)
• Mellon College of Science (http://coursecatalog.web.cmu.edu/melloncollegeofscience)
  • MCS Minors (http://coursecatalog.web.cmu.edu/melloncollegeofscience/melloncollegeofscience/minors)
  • Department of Biological Sciences (http://coursecatalog.web.cmu.edu/melloncollegeofscience/departmentofbiologicalsciences)
  • Department of Chemistry (http://coursecatalog.web.cmu.edu/melloncollegeofscience/departmentofchemistry)
  • Department of Mathematical Sciences (http://coursecatalog.web.cmu.edu/melloncollegeofscience/departmentofmathematicalsciences)
  • Department of Physics (http://coursecatalog.web.cmu.edu/melloncollegeofscience/departmentofphysics)
• MCS Interdisciplinary Courses (http://coursecatalog.web.cmu.edu/melloncollegeofscience/courses)
• School of Computer Science (http://coursecatalog.web.cmu.edu/schoolofcomputer)
  • Undergraduate Computer Science Program (http://coursecatalog.web.cmu.edu/schoolofcomputer/undergraduatecomputerscience)
  • Undergraduate Computational Biology Program (http://coursecatalog.web.cmu.edu/schoolofcomputer/undergraduatecomputationalbiology)
  • Additional Majors and Minors in SCS (http://coursecatalog.web.cmu.edu/schoolofcomputer/addmajorsminors)
• Tepper School of Business (http://coursecatalog.web.cmu.edu/tepper)
• Undergraduate Business Administration Program (http://coursecatalog.web.cmu.edu/tepper/undergraduatebusinessadministrationprogram)
• Undergraduate Economics Program (http://coursecatalog.web.cmu.edu/tepper/undergraduateeconomicsprogram)
• Carnegie Mellon University in Qatar (http://coursecatalog.web.cmu.edu/qatar)
• Course Descriptions (http://coursecatalog.web.cmu.edu/coursedescriptions)
• How to Use the Catalog (http://coursecatalog.web.cmu.edu/howtouse)
• Frequently Asked Questions (http://coursecatalog.web.cmu.edu/catalogfaqs)

Executive Management Team
FARNHAM JAHANIAN, Interim President.
LAURIE WEINGART, Interim Provost.
ANGELA BLANTON, Vice President and Chief Financial Officer.
GINA CASALEGNO, Vice President for Student Affairs and Dean of Students.
MARY JO DIVELY, Vice President and General Counsel.
STEVEN KLOEHN, Vice President for Marketing and Communications.
CATHY LIGHT, Secretary of the Corporation; Chief of Staff, Office of the President.
RODNEY MCLendon, Vice President for Operations.
SCOTT MORY, Vice President for University Advancement.
RICK SIGER, Director of Strategic Initiatives and Engagement.

University Leadership Council
KUMAR BHAGAVATULA, Interim Vice Provost for Research.
AMY L. BURKERT, Vice Provost for Education.
ROBERT DAMMON, Dean, David A. Tepper School of Business.
REBECCA DOERGE, Dean, Mellon College of Science.
JAMES H. GARRETT, Jr., Dean, College of Engineering.
JIMMY HSIA, Vice Provost for International Programs and Strategy.
RAMAYYA KRISHNAN, Dean, H. John Heinz III College.
DAN J. MARTIN, Dean, College of Fine Arts.
ANDREW MOORE, Dean, School of Computer Science.
MICHELLE PIEKUTOWSKI, Associate Vice President and Chief Human Resources Officer.
KATHRYN ROEDER, Vice Provost for Faculty.
RICHARD SCHEINES, Dean, Dietrich College of Humanities and Social Sciences.
MICHAEL STEIDEI, Dean of Admission.
MICHAEL TRICK, Dean, Carnegie Mellon-Qatar.
KEITH WEBSTER, Dean, University Libraries.

Officers of the Board of Trustees
JAMES E. ROHR, Chairman.
EDWARD H. FRANK, Vice Chair.
TOD S. JOHNSON, Vice Chair.
FARNHAM JAHANIAN, Interim President.
LAURIE WEINGART, Interim Provost.
ANGELA BLANTON, Vice President and Chief Financial Officer.
GINA CASALEGNO, Vice President of Student Affairs and Dean of Students.
MARY JO DIVELY, Vice President and General Counsel.
CHARLES A. KENNEDY, Chief Investment Officer and Interim Treasurer.
KAREN T. KHAN, Assistant Secretary.
STEVEN KLOEHN, Vice President for Marketing and Communications.
CATHY LIGHT, Secretary; Chief of Staff, Office of the President.
RODNEY MCLENDON, Vice President for Operations.
SCOTT MORY, Vice President for University Advancement.
CARRIE NELSON, Assistant Treasurer.

Voting Trustees
JOEL ADAMS, General Partner, Adams Capital Management, Inc..
LUIS BALL, Chairman and CEO, GrupoCiencia; President, Allegheny Medical Systems LLC.
RONALD BIANCHINI, Jr., President and CEO, Avera Systems.
KEITH BLOCK, Vice Chair and COO, Salesforce.com.
FRANK BRUNCKHORST, Boar’s Head Provisions Co., Inc..
ERIC COOPER, .
DAVID COULTER, Special Limited Partner, Warburg Pincus LLC.
RUSSELL CROCKETT, Senior Advisor, RTC Energy LLC.
JEANNE CUNICELLI, Executive Vice President, UPMC Enterprises.
ERROLL B. DAVIS, Jr., Senior Advisor, TalentQuest, Inc..
LINDA A. DICKERSON, Principal, 501(c)(3)2.
FRANCISCO D’SOUSA, President and CEO, Cognizant Technology Solutions.
HOWARD ELLIN, Partner, Skadden Arps Slate Meagher and Flom.
EDWARD H. FRANK, Founder and Sole Proprietor, Compass Vineyards; Co-founder and CEO, Cloud Parity, Inc..
YOSHIKISHI FUJIMORI, Senior Advisor, LXIL Group Corporation.
ERIC GILER, Chairman and CEO, Speedy Packets.
EDWARD GREFFENSTETTE, President, CEO and CIO, The Dietrich Foundation.
IRA J. GUMBERG, Chairman and CEO, I.J. Gumberg Co..
JEFFREY HOUSENBOULD, Managing Director, SoftBank.
TORRENCE M. HUNT, Jr., The Elmhurst Group, The Roy A. Hunt Foundation.
LARRY JENNINGS, Jr., Senior Managing Director, ValStone Partners, LLC.
TOD S. JOHNSON, Executive Chairman, The NPD Group, Inc..
RAYMOND J. LANE, Managing Partner, GreatPoint Ventures.
MICHAEL MQUADE, Senior Vice President for Science and Technology, United Technologies Corporation.
BRUCE MCMILLANS, Executive Chairman, Intermolecular.
ANNE M. MOLLOY, Executive Director, Posner Fine Arts Foundation.
AMBAR PAUL, Director, Caparo Group Limited.
DAVID FORGES, Executive Chairman, EQT Corporation.
JAMES E. ROHR, Retired Chairman and CEO, The PNC Financial Services Group, Inc..
JONATHAN ROTHBERG, Founder and Chairman, Butterfly Networks, LAM Therapeutics, Quantum-Si, Hyperfine Research, and 4 Combinator.
DAVID S. SHAPIRA, Executive Chairman, Board of Directors, Giant Eagle, Inc..
AJIT SHETTY, Retired Chairman of the Board, Janssen Pharmaceutica.
J. LEA HILLMAN SIMMONS, Chair, Hillman Family Foundations.
MANOJ SINGH, Retired Chief Operating Officer, Deloitte.
LUKE SKURMAN, CEO, Niche.
LIP-BU TAN, Chairman, Walden International; CEO, Cadence Design Systems.
DAVID TEPPE, President and Founder, Appaloosa Management.
THOMAS TULL, Founder, Legendary Pictures.
MARY ANN ULISHNEY, Vice President and Wealth Specialist, Wells Fargo Bank, N.A..
SUNIL WADHWANI, Managing Director, SWAT Capital.
PAULA KAUFFMAN WAGNER, Producer/Owner, Chestnut Ridge Productions.
MICHAEL ZAMAGIAS, Founder, Chairman and CEO, Zamagias Properties.

Ex-Officio Trustees
FARNHAM JAHANIAN, Interim President, Carnegie Mellon University.
BRUCE KRAUS, President, Pittsburgh City Council.
TIMOTHY S.K. LIU, President, Andrew Carnegie Society.
WILLIAM PEDUTO, Mayor, City of Pittsburgh.
JEANNE VANBRIESEN, Chair, Faculty Senate, Carnegie Mellon University.

Emeitus Trustees
PAUL A. ALLAIRE, Former Chairman and CEO, Xerox Corporation.
ARTHUR H. ARONSON, Retired Executive Vice President, Allegheny Teledyne.
JOHN R. BERTUCCI, Chairman, MKS Instruments, Inc..
CAROL R. BROWN, Former President, Pittsburgh Cultural Trust.
ROBERT M. BROWN, III, President, B-III Capital LLC.
W. LOGAN DICKERSON, President, Lindwood Farm, Inc. & Proteus Foods, Inc..
PHILIP L. DOWD, Sherick Enterprises, LLC.
DINA DUBLON, .
WILLIAM B. ELLIS, Retired Chairman and CEO, Northeast Utilities.
CYNTHIA FRIEDMAN, Co-owner, Union Real Estate Company of Pittsburgh.
HENRY J. GAILLiot, .
CLAUDE W. GARGALLI, .
RICHARD D. HAMILTON, Retired Director of Product Supply, Procter and Gamble.
WILTON A. HAWKINS, .
THERESA HEINZ, Chairman, The Heinz Endowments.
ORION HOCH, Chairman Emeritus, Lithon Industries.
T. JEROME HOLLERAN, Chairman, Precision Medical Products, Inc..
W. LEE HOSKINS, Retired Chairman and CEO, The Huntington National Bank.
JUSTIN M. JOHNSON, Retired Judge, Superior Court of Pennsylvania.
PATRICIA ASKWIT KENNEDER, President, Campus Coach Lines.
DAVID M. KIRR, Partner, KIRR, Marbach & Company.
EDWARD E. LUCENTE, .
THOMAS A. MCCONOMY, Retired Chairman of the Board, Calgon Carbon Corporation.
JACK E. MCGRATH, Retired Senior Vice President, Booz, Allen & Hamilton.
REGINA GOGHE MILLER, Owner/Artist, Ginger and Spice; Regina Gouger Miller Studio.
LINDSAY J. MORGENTHALER, .
ALESSANDRO OVI, Executive Vice President, Fondazione Politi.
NORMAN F. PARKER, Retired President, Varian Associates.
E. KEARS POLLOCK, Retired Executive Vice President, PPG Industries, Inc. .
CHARLES J. QUEENAN, JR., Chairman Emeritus, K&L Gates LLP.
WILLIAM G. RANGOS, John G. Rangos, Sr. Charitable Foundation.
DAVID M. RODERICK, Former Chairman and CEO, United States Steel Corporation.
VINCENT A. SARNI, Retired Chairman and CEO, PPG Industries, Inc. .
JOYCE BOWIE SCOTT, J. Bowie Scott Studio.
DAVID S. SHAPIRA, Executive Chairman, Board of Directors, Giant Eagle, Inc.
RAYMOND SMITH, Chairman, Rothschild Continuation Investments.
JAMES C. STALDER, 
W. LOWELL STEINBRENNER, Retired Chairman, Contours, Ltd.
DONALD E. STITZENBERG, Principal, CBA Associates.
JAMES M. WALTON, President Emeritus, Carnegie Institute.
KONRAD M. WEIS, Former President and CEO, Bayer Corporation.