

# School of Design

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Location: Margaret Morrison Carnegie Hall 110  
design.cmu.edu (<http://design.cmu.edu>)

## Design at Carnegie Mellon

Design is the thoughtful activity that humanizes our environment through visual communication and the shaping of products that help us in our daily lives. Whether in magazines and books, posters and exhibitions, video and film, human-computer interactions, or any of the myriad of everyday products such as furniture, consumer goods, vehicles, or medical equipment, designers play an important role in shaping the form and content of our experience.

Designers are concerned with aesthetics, but they are equally concerned with serving people. This requires more than skill in the fine arts. It also requires knowledge about the needs, desires, expectations, and capabilities of human beings. It requires skills of observation and interpretation that help us understand the people that we want to serve. More than this, however, designers must also understand the technological issues that stand behind effective products. They must understand the materials, tools, and production processes of the modern world. An education in design is an education for the mind as well as the eye and hand.

The undergraduate program enables students to develop specialized skills in the areas of Product (Industrial) Design, Communication (Graphic) Design and Design for Environments (design for physical and digital environments), while providing them with a solid foundation in design studies. Students study systems thinking; the ability to see and solve problems at multiple levels of scale, and situate their work within larger social and environmental contexts.

The over-arching theme of the curricula is *design for interactions*, which acknowledges that 'ecologies' of products and communications often come together within complex physical and digital environments. Coursework balances making and theory with the integration of new, emergent technologies. Students are encouraged to explore the scope of design as well as the responsibility and ethics involved in the design of interactions between people, the built world, and the environment.

The curriculum is one that provides students with the ability to customize their degree: they may choose to specialize in one of three areas offered (Products, Communications, Environments), but also have the option of combining any two, to create a unique, interdisciplinary design degree.

The undergraduate curriculum also introduces students to three important areas of design focus: design for service, design for social innovation and transition design. These represent both new and established design approaches to framing and solving problems. In their senior year, students bring their disciplinary specialty (communications, products or environments) to projects that are situated within the areas of design for service and/or design for social innovation.

The School offers a Bachelor of Design with tracks in Communications, Products, or Environments.

### Communications

The ability to communicate and shape meaning is one of the most powerful and ubiquitous forms of design in today's world. Students learn to design effective communications across a wide variety of media that *always* exist within complex webs of interactions between people, products, and environments. Areas of study include narrative and storytelling, information design, and a variety of analog and digital visualization techniques. Students develop the ability to identify specific audiences and communicate to them through effective visual, verbal and aural communications that educate, inform and delight.

They study the dynamic and 'emergent' characteristics of communications in a globally networked society where technologies and modes of individual and mass communication are constantly changing. Students learn systems thinking and engage in an iterative, multi-disciplinary and collaborative design process that involves research, observation, prototyping and rigorous evaluation. Students develop the ability to identify and communicate to specific audiences through effective visual and verbal communications that educate, inform, delight and invite participation.

### Products

Students learn to design products and their interactions within the context of human needs and they develop a deep understanding of the ways in which products shape behavior. Our curriculum acknowledges that no product exists in isolation—it is *always* part of a larger system comprised

of people, communications and environments. Within the context of design for service, products exist as 'touchpoints' in a service ecology. For this reason, students learn systems thinking and engage in an iterative, multi-disciplinary and collaborative design process that involves research, observation, modeling/prototyping and rigorous evaluation.

Students are introduced to current production and manufacturing processes as well as sustainable approaches, such as cradle-to-cradle, lifecycle analysis and the use of new, more environmentally friendly materials. The School has a well-equipped analog and digital prototyping facility where students work with traditional materials such as wood and metal and learn to design and prototype using CAD software and 3D digital printers.

### Environments

Students learn to design for complex environments that exist in the digital, physical and multi-modal realms. Most of the products and communications we interact with are situated within complex physical spaces (our homes, classrooms, places of business, shopping malls, even amusement parks). We also interact with complex online environments such as large websites, social networking and virtual reality environments. And increasingly we interact in 'smart' physical spaces with multi-modal communications in a combination of the analog and the digital.

In our curriculum, environments are seen as integrated and dynamic systems that require the design of interactions at multiple levels of scale. Students acquire a diverse set of skills that includes a deep understanding of spatial relationships, designing *with* and *for* emerging, multi-media technologies and an understanding of the cognitive challenges presented by multi-modal spaces.

Students who focus on the design of environments delve deep into systems thinking and systems dynamics and spend time learning to collaborate and lead within multi-disciplinary teams (solving large problems involving complex spaces almost always involves teams of people from different disciplines).

### Design Minor Program

The School also offers a minor in Design for well-qualified students. Further information on the minor program is provided here (<https://design.cmu.edu/about-our-programs/undergraduate-degrees/minor-design/>).

## The Design Curriculum

Minimum units required for Bachelor of Design 360

The design curriculum is for students who are interested in full-time undergraduate study leading to entry-level professional employment or advanced graduate study in the areas of Communication Design, Product Design, or Design for Environments. The first year is a period of discovery, where students explore studio projects and supporting courses in the ideas and methods of design practice as well as courses in design studies. The second and third years are a period of concentration and development primarily within the student's area(s) of specialization. The fourth year is a period of integration and advanced study, with studio projects involving teams of students from all areas of design. There are studio courses throughout all four years, supported by departmental electives in the ideas and methods of design practice and other courses in the history, theory, and criticism of design. In addition, the School also requires all students to take a substantial number of general education courses offered by other departments throughout the university. General education is an essential part of the education of a professional designer.

### Foundation Year

In their first year, students are introduced to all three areas of design specialty: Product (Industrial), Communication (Graphic) and digital and physical Environments. Here, they explore these unique and complementary areas of design and gain a wide range of skill sets such as systems thinking, iterative process, collaboration and visualization, and work in both two and three dimensional materials as well as digital media.

At the end of their first year, students are given the opportunity to begin to focus their interests in two of three design areas (products/communications/environments) and will eventually decide upon a single area of focus or a dual path of study.

This is the first-year curriculum for all design students.

**First Year**

## Fall

Studio		Units
51-101	Studio: Survey of Design	10
		<b>10</b>

Ideas and Methods		Units
51-121	Visualizing	10
		<b>10</b>

Design Studies		Units
51-175	Design Studies: Place	5
51-177	Design Studies: Histories	5
		<b>10</b>

General Education		Units
76-101	Interpretation and Argument	9
85-102	Introduction to Psychology	9
or 85-211	Cognitive Psychology	
or 85-241	Social Psychology	
88-120	Reason, Passion and Cognition	9
99-101	Core@CMU	3
		<b>30</b>

## Spring

Studio		Units
51-102	Design Lab	10
		<b>10</b>

Ideas and Methods		Units
51-122	Collaborative Visualizing	10
51-132	Introduction to Photo Design	10
		<b>20</b>

Design Studies		Units
51-176	Design Studies: Futures	5
51-178	Design Studies: Experience	5
		<b>10</b>

Humanities & Social Sciences		Units
One course in the Dietrich College of Humanities & Social Sciences		9

**Second Year**

Following the first-year program, students select two out of three areas of interest: Products[P], Communications[C], Environments[E]. In the fourth semester students select one of the two areas to study more deeply. Students investigate the relationships people form with designed artifacts and the roles that physical, visual, and digital forms play in our lives. They apply what they learn to the design of products, communications, and environments that facilitate interactions. Students are also required to take general education courses to gain a broad vision of many disciplines and fields of knowledge that are relevant to design.

**Second Year**

## Fall

Studio		Units
51-225	Communications Studio I: Understanding Form & Context (Pick two)	4.5, 4.5
or 51-245	Products Studio I: Understanding Form & Context	
or 51-265	Environments Studio I: Understanding Form & Context	

Ideas and Methods		Units
51-227	Prototyping Lab I: Communications (Pick two corresponding labs)	4.5, 4.5
or 51-247	Prototyping Lab I: Products	
or 51-267	Prototyping Lab I: Environments	

51-221	Color for Communications, Products, Environments	9
or 51-229	Digital Photographic Imaging	
or 51-242	How Things Work: Mechanics and Electronics	

Design Studies		Units
51-277	Design Studies: Systems	5
51-279	Design Studies: Cultures	5
		<b>10</b>

General Education		Units
xx-xxx	Academic Elective	9
		<b>9</b>

## Spring

Studio		Units
51-228	Communications Studio II: Designing Communications for Interactions	9
or 51-248	Products Studio II: Designing Products for Interactions	
or 51-268	Environments Studio II: Designing Environments for Interaction	
		<b>9</b>

Ideas and Methods		Units
51-239	Prototyping Lab II: Communications	9
or 51-249	Prototyping Lab II: Products	
or 51-269	Prototyping Lab II: Environments	
		<b>9</b>

Design Studies		Units
51-282	Design Studies: Persuasion	5
51-284	Design Studies: Power	5
		<b>10</b>

General Education		Units
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9
		<b>18</b>

**Third Year**

In the fifth and sixth semesters, students may choose to continue their fourth semester area of focus, or they may choose to study their second area of study from the third semester. Students study how design functions at various levels of scale and degrees of complexity situated in specific contexts. They design products, communications, and environments that function as cohesive systems that live within the built and social worlds.

**Third Year**

## Fall

Studio		Units
51-323	Communications Studio III: Designing for Complex Communication Systems	10
or 51-343	Products Studio III: Designing for Complex Products Systems	
or 51-363	Environments Studio III: Designing for Complex Environment Systems	
		<b>10</b>

Ideas and Methods (Select two Design Electives)		Units
51-xxx	Design Elective	9
51-xxx	Design Elective	9
		<b>18</b>

General Education		Units
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9
		<b>18</b>

## Spring

Studio		Units
51-330	Communications Studio IV: Designing Communications for Social Systems	10
or 51-350	Products Studio IV: Designing Products for Social Systems	
or 51-360	Environments Studio IV: Designing Environments for Social Systems	
		<b>10</b>
Ideas and Methods (Select two Design Electives)		Units
51-xxx	Design Elective	9
51-xxx	Design Elective	9
General Education		Units
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9
		<b>18</b>

## Fourth Year

In the senior year, students work to identify their next steps in professional practice, entrepreneurship, or in academia. They apply their design skills and knowledge to client-based and/or self-defined projects that focus on the design of services or social innovation.

The fall semester features the Design Research Studio, a semester-long project where students work in teams applying skill and knowledge learned in Products, Communications, and/or Environments. In the spring the Capstone Project challenges students to work independently on a semester-long project, deepening their understanding of service or social innovation design principles.

## Fourth Year

## Fall

Studio		Units
51-481	Senior Design Studio	12
		<b>12</b>
Ideas and Methods (Select one Design Elective)		Units
51-xxx	Design Elective	9
		<b>9</b>
General Education		Units
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	10
		<b>19</b>

## Spring

Studio		Units
51-480	Design Capstone Project	12
		<b>12</b>
Ideas and Methods (Select one Design Elective)		Units
51-xxx	Design Elective	9
		<b>9</b>
General Education		Units
xx-xxx	Free Elective	15
		<b>15</b>

## Other Requirements

General education courses should be selected from other departments throughout the university. Students are strongly advised to select a balanced set of general education electives in addition to Interpretation and Argument, Humanities & Social Sciences Elective, and Introduction to Psychology - from three broad areas of study: arts and humanities, social and behavioral sciences, and natural sciences and engineering, including mathematics. While free electives may include studio courses in other departments, academic electives are non-studio (lecture) courses in other departments. Specific recommendations (and general requirements) for electives in all of these areas are available from advisors in the School of Design. The School places strong emphasis on the value of general education for personal growth as well as professional development. General education electives allow a student to obtain a minor in another department or program, such as business, human-computer interaction, IDEATE, engineering, professional and technical writing, or architecture.

Students may enroll for no more than 18 units of independent study courses, and no more than one independent study per semester. A minimum 3.0 GPA is required for independent study. Independent study is permitted only in the third and fourth years of the program. Proposals for independent study courses must be developed jointly by the student and a faculty advisor. Guidelines are available from the School.

A minimum GPA of 2.0 is required to maintain Professional Program status. Grades lower than "C" in required Design courses will result in academic probation, suspension, or drop from the School of Design.

Full-time students are required to enroll for a minimum of 36 units per semester, with 45 units required for expected degree progress (typically five courses per semester). The minimum number of units required for graduation in Design is 360.

## Academic Standards

The design curriculum adheres closely to the fundamental professional entry-level standards established by the two leading national design organizations: the American Institute of Graphic Arts (AIGA) and the Industrial Designers Society of America (IDSA).

## Applications

The School of Design accepts applications from students who are completing secondary education or who wish to transfer from within Carnegie Mellon University. The School also accepts applications from students who wish to transfer from other institutions. Students applying for the program are asked to submit a digital portfolio as evidence of design ability. This is considered in balance with evidence of academic ability, based on secondary school grades, SAT scores, class rank, and letters of recommendation. The School also accepts applications for the design minors program for a limited number of spaces. Details are available on the Design website.

## Emeriti Faculty

JOSEPH M. BALLAY, Professor Emeritus - M.F.A., Carnegie Mellon University; Carnegie Mellon, 1970-2002-

DAN BOYARSKI, Professor Emeritus - M.F.A., Indiana University School for Design, Kunstgewerbeschule, Basel, Switzerland; Carnegie Mellon, 1982-2018-

CHARLEE MAE BRODSKY, Professor Emeritus - M.F.A., Yale University; Carnegie Mellon, 1978-2022-

THOMAS L. MERRIMAN, Teaching Professor Emeritus - B.F.A., Carnegie Mellon University; Carnegie Mellon, 1985-2020-

## Faculty

ERIC ANDERSON, Professor & Interim Head - M.A., Ohio State University; Carnegie Mellon, 1998-

MARK BASKINGER, Professor - Ph.D, Royal Melbourne Institute of Technology; Carnegie Mellon, 2003-

JONATHAN CHAPMAN, Professor - Ph.D, University of Brighton; Carnegie Mellon, 2017-

WAYNE CHUNG, Professor - MID, University of the Arts; Carnegie Mellon, 2007-

DINA EL-ZANFALY, Assistant Professor – Ph.D, MIT; Carnegie Mellon, 2019–  
KELSEY ELDER, Assistant Professor – M.F.A., Cranbrook Academy of Art; Carnegie Mellon, 2022–  
BRUCE HANINGTON, Professor – M.E.Des., University of Calgary; Carnegie Mellon, 1998–  
SUNKI HONG, Assistant Professor – M.F.A, Iowa State University; Carnegie Mellon, 2023–  
KRISTIN HUGHES, Associate Professor – M.F.A., Virginia Commonwealth University; Carnegie Mellon, 2001–  
TERRY IRWIN, Professor – M.S., Schumacher College; Carnegie Mellon, 2009–  
HAEYOUNG KIM, Assistant Professor – M.Des, Harvard University Graduate School of Design; Carnegie Mellon, 2023–  
MARK MENTZER, Professor – B.F.A., Carnegie Mellon University; Carnegie Mellon, 1975–  
DAPHNE PETERS, Assistant Teaching Professor – M.Des., Elisava, Escola Superior de Disseny; Carnegie Mellon, 2017–  
STACIE ROHRBACH, Professor – M.GD, North Carolina State University; Carnegie Mellon, 2003–  
DANIEL ROSENBERG, Assistant Professor – Ph.D, Massachusetts Institute of Technology; Carnegie Mellon, 2021–  
PETER SCUPELLI, Associate Professor – MDes & Ph.D, Carnegie Mellon; Carnegie Mellon, 2011–  
STEPHEN J. STADELMEIER, Associate Professor – M.S., Cornell University; Carnegie Mellon, 1977–  
ANDREW TWIGG, Associate Teaching Professor – B.A., Allegheny College; Carnegie Mellon, 2014–  
DYLAN VITONE, Associate Professor – M.F.A., Massachusetts College of Art; Carnegie Mellon, 2004–  
BRETT YASKO, Assistant Teaching Professor – B.A., The American University, Washington D.C.; Carnegie Mellon, 2019–  
MATT ZYWICA, Associate Teaching Professor – B.F.A., University of Illinois; Carnegie Mellon, 2014–

## Special Faculty

ASHLEY DEAL, Special Faculty – M.Des, Carnegie Mellon University; Carnegie Mellon, 2016–  
GIDEON KOSSOFF, Special Faculty – Ph.D, University of Dundee, Scotland; Carnegie Mellon, 2017–  
RAELYNN OLEARY, Special Faculty – M.Des, Carnegie Mellon University; Carnegie Mellon, 2016–

## Courtesy Appointments

DARAGH BYRNE, Associate Teaching Professor – School of Architecture & the Integrated Innovation Institute,  
JONATHAN CAGAN, George Tallman Ladd Professor of Mechanical Engineering – College of Engineering,  
JODI FORLIZZI, Professor & Director – Human-Computer Interaction Institute,  
STEFAN GRUBER, Associate Professor – School of Architecture,  
SUGURU ISHIZAKI, Associate Professor of Rhetoric and Visual Design – Department of English,  
DAVID S. KAUFER, Professor of English and Rhetoric – Department of English,  
GOLAN LEVIN, Professor & Director of Frank Ratchye Studio for Creative Inquiry – School of Art,  
PAUL PANGARO, Professor of Practice – Ph.D, Brunel University; Carnegie Mellon, 2022–  
CAMERON TONKINWISE, Professor of Design Studies – University of Technology Sydney,  
JOHN ZIMMERMAN, Associate Professor – Human-Computer Interaction Institute,

## Adjuncts of Practice

VICTORIA CROWLEY, Independent Design Consultant  
JOE DICEY, Letterpress Facilities Manager  
KELSEY DUSENKA, Independent Design Consultant  
ARTHI KRISHNASWAMI, RyeCatcher  
HANNAH DU PLESSIS, Fit Associates  
MARC RETTIG, Fit Associates  
MYRNA ROSEN, Calligraphy Guild of Pittsburgh

## Professional Affiliates

MATT BEALE, Principal, Daedalus Design  
TIM CUNNINGHAM, Founder, Daedalus Design  
CHERYL DAHLE, Founder, Flip Labs