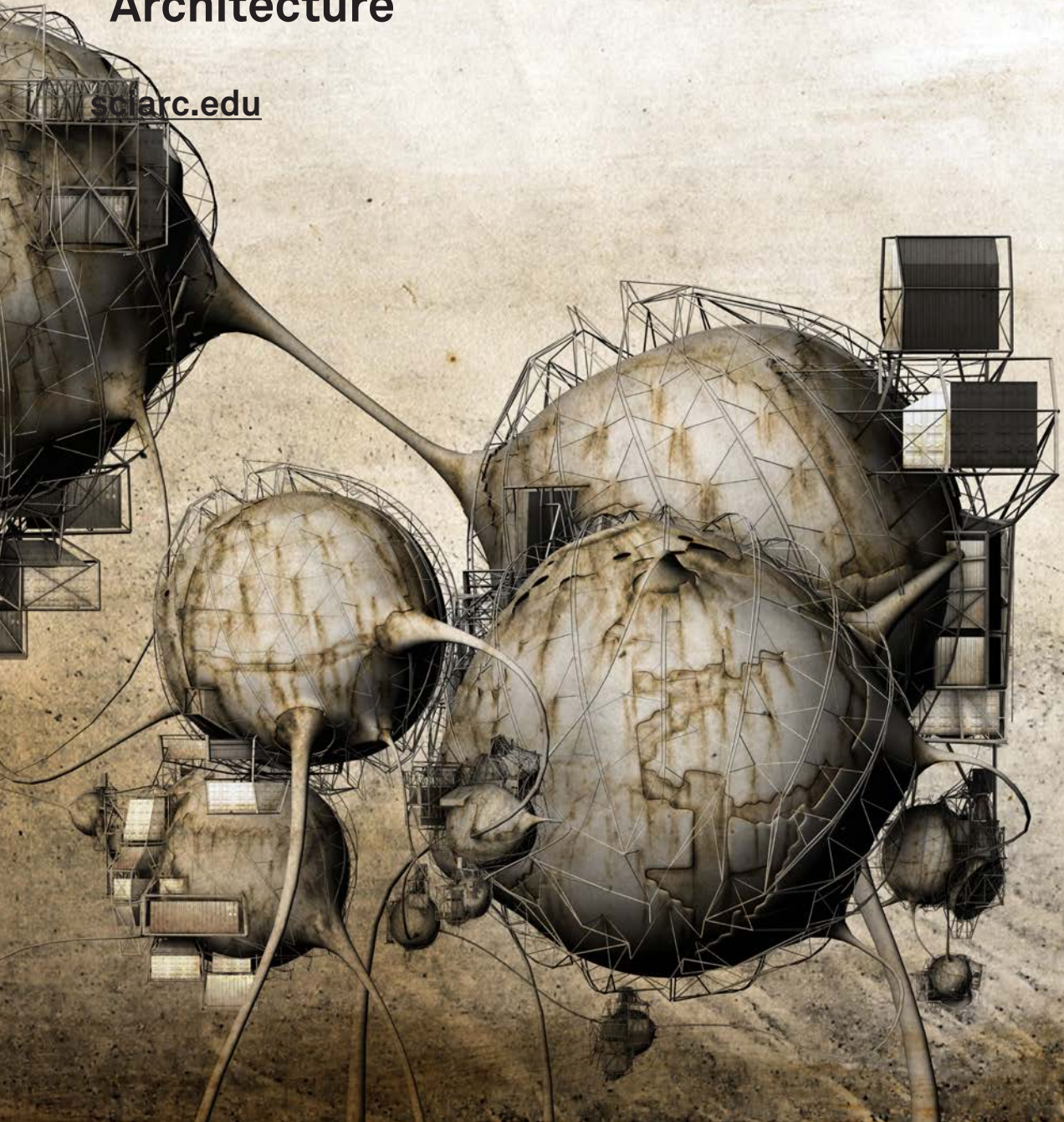


**Southern
California
Institute
of
Architecture**

2011-2012
Course Catalogue

sclarc.edu



Academic Programs and Degree Requirements

UNDERGRADUATE DEGREE (B.ARCH) 5 YEAR (10 TERM) PROGRAM

Professional Bachelor of Architecture (B.Arch) program, accredited by the National Architectural Accrediting Board (NAAB).

John Enright Undergraduate Program Chair

SCI-Arc's undergraduate program is aimed at educating young architects who will go on to lead the discipline as designers and question the status quo by searching for new models of architectural inquiry. The program achieves a fluid and holistic approach through an emphasis on a wide range of conceptual and practical skills, from critical thinking to technical expertise. Advanced digital technologies and fabrication methods permeate the program and take advantage of SCI-Arc's state-of-the-art fabrication shops, ranging from 3D printers, CNC mills, and vacuum-forming machines to traditional forms of metal and wood working, as well as sophisticated automation and robotics facilities.

The four parallel paths of the program feed into the design studio, creating a platform for the synthesis of the curriculum. Cultural Studies, Applied Studies, Visual Studies, and General Studies are crafted so as to develop in students a rigorous knowledge of the discipline. An understanding of the inherent inter-relationships of these topics is developed as students sequence through their five years of study. Throughout the program, emphasis is placed on the development of the individual student's personal growth, self-reflection, knowledge and critical engagement of architectural design issues, including not only design, but advanced visualization techniques, information technologies, systems integration, deep cultural interactions, and new ecological and sustainable approaches.

The early foundation sequence of the program emphasizes General Studies and a holistic knowledge base, while the subsequent core sequence engages the more technical and practical aspects of architectural investigation. The advanced studies portion of the program includes Professional Practice coursework to prepare students for the complexities of the profession, while a choice of vertical design studios and electives enables students to pursue their individual interests. Students culminate their studies with a focused thesis project in their final semester to both manifest the cumulative knowledge of their education and act as a point of trajectory from which to engage their discipline, field and profession at large.

General Studies

The Bachelor of Architecture degree program at SCI-Arc includes a fully-integrated required General Studies curriculum of 36 units for a total of 45 units of non-architectural content.

A fully-integrated General Studies curriculum represents a fresh and innovative approach to teaching a wide breadth of knowledge and critical thinking skills. Non-architectural content is directed with a two-pronged approach: firstly, as an intensive series of developed courses at the foundation level, and secondly, as a flexible series of one-time elective seminars taught by leading thinkers, writers, theorists and practitioners in a wide spectrum of fields and subjects, from real estate development to biomimicry to media culture to particle physics. By preparing students to think critically, engage other areas of thought and discipline directly and acquire basic knowledge through reading, writing and iteration, students are positioned to understand the inherent complexity and expertise required in more specific fields during the later sequence of the undergraduate program. They are also prepared to meet the expected standards of their thesis projects, as well as for specific engagement within their field and the profession of Architecture. A permanent course in the history of ideas serves as the cornerstone for this program, allowing students to critically understand the range, form, history and organization of the complexity of all human concepts in order to empower and nurture independent, creative thinking.

A general studies committee, consisting of the Undergraduate Program Chair, General Studies Coordinator, Cultural Studies Coordinator, Director of Admissions, and Academic Counselor periodically review and update general studies requirements.

Course structure

I. Foundation program

First term — 1A	Second term — 1B
DS1010 — 6 units Material Strategies for the Physical World	DS1011 — 6 units Conceptual Strategies for the Physical World Prerequisite: DS1010
GS7010 — 3 units Introduction to Design Cultures	CS2012 — 3 units History of Architecture 1: Premodern to Modern
GS7011 — 3 units Collegiate Writing	GS7014 — 4 units Humanities 1: Premodern to Modern
GS7012 — 4 units Introduction to the Physical World	GS7015 — 3 units Advanced Calculus and Trigonometric Functions
GS7013 — 3 units Visual Rhetorics	VS4011 — 3 units Fabrications and Delineations Prerequisite: GS7013

Students who fall behind their studio level by three or more required courses will be required to enroll in seminars only during the subsequent term.

Third term — 2A	Fourth term — 2B
<p>DS1020 — 6 units Formworks: Sites and Contexts Prerequisite: DS1011</p>	<p>DS1021 — 6 units Frameworks: Programs Prerequisite: DS1020</p>
<p>CS2024 — 3 units History of Architecture 2: Modern to Contemporary Prerequisite: CS2012</p>	<p>GS7021 — 3 units The History of Ideas Prerequisite: CS2024</p>
<p>GS7020 — 4 units Humanities 2: Modern to Contemporary Prerequisite: GS7014</p>	<p>AS3030 — 3 units Structures 2 Prerequisite: AS3021</p>
<p>AS3021 — 3 units Structures 1</p>	<p>VS4021 — 3 units Technologies of Description 2: Prerequisite: VS4020</p>
<p>VS4020 — 3 units Technologies of Description 1 Prerequisite: VS4011</p>	<p>General Studies Elective - 3 units</p>

Students are required to submit a portfolio at the completion of the DS1021 (2B) studio prior to advancing into the fifth term.

II. Core program

Fifth term — 3A	Sixth term — 3B
<p>DS1030 — 6 units Field Operations: Static Architectural Systems Prerequisite: DS1021</p> <p>CS2030* — 3 units Introduction to Urban Systems Prerequisites: GS7021</p> <p>VS4030 — 3 units Technologies of Description 3 Prerequisite: VS4021</p> <p>AS3020 — 3 units Environmental Systems 1</p> <p>General Studies Elective - 3 units</p>	<p>DS1031 — 6 units Dynamic Architectural Systems + integrated Applied Studies component Prerequisite: DS1030</p> <p>CS2031* — 3 units Philosophy of Technology Prerequisites: CS2030</p> <p>AS3033 — 3 units Tectonics</p> <p>AS3031 — 3 units Environmental Systems 2</p>

* Non-Architectural/General Studies Content

III. Advanced studies

Seventh term — 4A	Eighth term — 4B
<p>DS1040 — 6 units City Operations: Architecture in Critical Settings + integrated Cultural Studies component Prerequisite: DS1031</p>	<p>Vertical studio— 6 units Prerequisite: DS1040</p> <p>AS3041 — 3 units Construction Documents</p>
<p>CS2040 — 3 units Introduction to Critical Studies Prerequisite: CS2031</p>	<p>AS3042 — 3 units Professional internship (by approval: full-time summer) or Elective or CPT</p>
<p>AS3040 — 3 units Design Development</p>	<p>Non-Architectural Elective — 3 units</p>
<p>AS3032 — 3 units Smart and Sustainable Systems</p>	
<p>General Studies Elective - 3 units</p>	

Students are required to submit a portfolio at completion of the DS1040 (4A) studio before advancing into the eighth term. Students are also required to complete all core courses prior to advancement.

All General Studies requirements must be completed before entering the ninth term.

⊗ Students may apply for CPT units beginning in their eighth term. Only two 3 unit electives can be used for CPT. Students wishing to apply for CPT units must enroll with the Registrar and Academic Counselor’s Offices. Approval for coursework is made by the Director’s Office.

Ninth term — 5A	Tenth term — 5B
<p>Vertical studio — 6 units</p> <p>CS2050 — 3 units Thesis Project Research</p> <p>AS3050 — 3 units Practice Environments: Contracts, Liabilities, and Business Models</p> <p>Elective — 3 units or CPT ☒</p>	<p>DS1051 — 9 units Thesis Project Studio Prerequisite: CS2050</p> <p>Elective — 3 units or CPT ☒</p> <p>Elective — 3 units or CPT ☒</p>

All General Studies requirements must be completed before entering the ninth term.

☒ Students may apply for CPT units beginning in their eighth term. Only two 3 unit electives can be used for CPT. Students wishing to apply for CPT units must enroll with the Registrar and Academic Counselor’s Offices. Approval for coursework is made by the Director’s Office.

GRADUATE DEGREE PROGRAMS

Hernan Diaz-Alonso

Graduate Programs Chair

The century ahead of us will introduce many challenges we cannot possibly envision in advance, yet must solve as soon as they arrive. We have no choice but to imagine them, to model them, and to prototype our responses.

No matter how alien our world may come to seem, our adaptations and interventions will be based on fundamental questions that persist no matter how many times we think we have answered them. How do we design for our culture? For whom are our buildings and cities designed? How can the material structures we make express what we think and feel?

Working to reveal and seed future directions in the architectural discipline, SCI-Arc's graduate studies respond to shifts in society, technology, and culture within an evolving learning environment.

Programs are led by faculty engaged in worldwide architectural practice and discourse in fields ranging from design and engineering to visual and cultural studies. Through the feedback they provide from their practices, the graduate curriculum is continuously and dynamically shaped in an arrangement only available to an institution entirely devoted to architecture. Promoting cross-pollination from other fields of study in a critical manner, the graduate programs mature a practice deriving from an emphasis on process and a synthesis of thinking, inquiry, and execution.

Attracting a diverse and international student body, the graduate programs at SCI-Arc are at once global and local, comprehensive and current, providing a rigorous and unusually intimate education that cultivates and recognizes experimentation and creative freedom.

M.Arch 1

3 Year Program

The Master of Architecture 1 is a three-year (seven-term) professional program open to applicants who hold a bachelor's degree or equivalent in any field of study. Accredited by the National Architectural Accrediting Board (NAAB) the program is open to applicants who hold a bachelor's degree or equivalent in any field of study. This program requires attendance for the fall and spring terms of the first two years, and the fall, spring and summer terms of the final year.

Throughout the M.Arch 1 program, emphasis is placed on the production of architecture and the ways in which making produces a unique intelligence for the field, defining a clear stance towards Contemporary Morphology with a renovated novelty of rigor, and progressive thinking about Type Evolution into New Typologies

to further innovation within the tradition of the discipline. The program operates from a place of deep knowledge within the discipline, with focus on the present and into the future.

Starting with a four-semester core sequence, students develop a framework for the discipline, as well as a strong foundation for critical inquiry and experimentation. By integrally linking each semester's design studio with courses in the areas of Applied Studies, Cultural Studies, and Visual Studies, the program offers students immediate instruction into the depth of the relationship between architecture and technological advances, representation, and social change. With each progressive semester increasing in sophistication, students address a breadth of complex architectural issues while testing their own intellectual and design convictions.

Upon completion of the core sequence, students are encouraged to actualize a distinct point of view, investigating design through innovations in technology and advancing new praxes of design analysis through applied research in advanced studios and seminars.

Students conclude their studies with a presentation and public exhibition of a thoroughly researched architectural thesis. Selected thesis projects are featured for extended public display in the SCI-Arc Gallery.

Course structure

First term — 1GA	Second term — 1GB
DS1100 — 6 units Fundamental Architecture 1	DS1101 — 6 units Fundamental Architecture 2 Prerequisite: DS1100
CS2101 — 3 units Introduction to Contemporary Architecture	CS2100 — 3 units Architecture Culture 1 Prerequisite: CS2101
AS3100 — 3 units Materials and Tectonics	AS3101 — 3 units Structures 1 Prerequisite: AS3100
VS4100 — 3 units Techniques of Representation 1	AS3121 — 3 units Environmental Systems 1: Light, Air, and Sound
	VS4101 — 3 units Techniques of Representation 2 Prerequisite: VS4100

Students are required to submit a portfolio at the completion of the 1GB (DS1101) studio prior to advancing into the third term.

Third term — 2GA	Fourth term — 2GB
<p>DS1120 studio — 6 units Architecture's Integration Prerequisite: DS1101</p> <p>CS2120 — 3 units Architecture Culture 2 Prerequisite: CS2100</p> <p>AS3120 — 3 units Structures 2 Prerequisite: AS3101</p> <p>AS3123 — 3 units Environmental Systems 2: Sustainability and Complex Envelopes Prerequisite: AS3121</p> <p>VS4120 — 3 units Advanced Computation 1 Prerequisite: VS4101</p>	<p>DS1121 — 6 units Architecture's Intervention Prerequisite: DS1120</p> <p>CS2121 — 3 units Urban Culture Prerequisite: CS2120</p> <p>AS3122 — 4 units Design Development and Documentation Prerequisite: AS3123</p> <p>VS4121 — 3 units Advanced Computation 2 Prerequisite: VS4120</p>

Students are required to complete all the above courses prior to advancing into the fifth term.

Fifth term — 3GA	Sixth term— 3GB
<p>Vertical studio — 6 units</p> <p>Cultural Studies elective — 3 units</p> <p>AS3130 — 3 units Practice Environments: Contracts, Liabilities, and Business Models</p> <p>Elective — 3 units or CPT ☒</p>	<p>Vertical studio — 6 units</p> <p>CS2410 — 3 units Thesis Research</p> <p>Elective — 3 units or CPT ☒</p> <p>Elective — 3 units or CPT ☒</p>

Students are required to submit a portfolio at the completion of the 3GA studio prior to advancing into the sixth term.

Students are required to complete all course requirements up to the sixth term prior to advancing into DS1420 (4GA).

Seventh Term— 4GA (summer)**DS1420 — 9 units**

Graduate thesis

Prerequisite: CS2410

Elective — 3 units**or CPT ☉****Elective — 3 units****or CPT ☉**

☉ Students may apply for CPT units after completing second term. Only 6 units of electives can be used for CPT. Students wishing to apply for CPT units must enroll with the Registrar and Academic Counselor's Offices. Approval for coursework is made by the Directors' Office.

M.Arch 2**2 Year (5 Term) Program**

The Master of Architecture 2 is a two-year (five-term) professional program open to applicants with a minimum of a four-year degree in Architecture, or its equivalent abroad. Accredited by the National Architectural Accrediting Board (NAAB) the program is open to applicants with a minimum of a four year degree in Architecture, or its equivalent abroad. This program requires attendance for the fall and spring terms of the first year, and the fall, spring and summer terms of the final year.

The M.Arch 2 program is designed to build upon and reconsider knowledge gained from a prior undergraduate degree in Architecture. Students are introduced to an advanced critical perspective on contemporary architectural issues—both theoretical and design-related—as a tool to examine the complex and shifting relationship between architecture and cultural, political, economic, and social change. Architectural conventions and standards are challenged through examination and exploitation of other models of design and production. The program operates as a laboratory in which to identify new possibilities for the integration of emerging techniques and technologies. Students learn the latest developments in fabrication and gain an understanding of design methodologies within historical and contemporary contexts.

On completing the two-term core sequence, students select vertical studios and elective seminars that either continue the focus of their core studies or broaden the scope of their education.

Students complete their studies with a presentation and public exhibition of a thoroughly researched architectural thesis. Selected thesis projects are featured for extended public display in the SCI-Arc Gallery.

Required Courses

The Academic Counselor reviews the transcripts and/or coursework of students entering the M.Arch 2 program to verify that they have completed courses comparable to the following core Applied Studies classes offered at SCI-Arc: AS3101: Structures 1; AS3120: Structures 2; and AS3121: Environmental Systems 1: Light, Air and Sound. Students who have not passed these classes are required to do so. M.Arch 2 students who have passed a sequence of courses on structures during their undergraduate courses at other institutions, but have not been introduced to seismic issues, are required to take a course on that subject before the end of their second term at SCI-Arc. Incoming M.Arch 2 transcripts will also be evaluated for achievement in the NAAB requirements for Architectural Traditions.

Course structure

First term — 2GAX	Second term — 2GBX
<p>DS1200 — 6 units Compositional Morphologies</p> <p>CS2200 — 3 units Theories of Contemporary Architecture 1</p> <p>AS3200 — 3 units Advanced Tectonics</p> <p>VS4200 — 3 units Modeling, Tooling, and Computation</p>	<p>DS1201 — 6 units Generative Morphologies Prerequisite: DS1200</p> <p>CS2201 — 3 units Theories of Contemporary Architecture 2 Prerequisite: CS2201</p> <p>AS3201 — 3 units Advanced Building Systems Prerequisite: AS3200</p> <p>AS3302 — 3 units Advanced Structural Systems Prerequisite: AS3200</p>

Students are required to complete all 2GAX and 2GBX courses prior to advancing into the third term.

2GAX Students who do not meet NAAB SPC requirements for A.9- Historical Traditions and Global Culture will be required to take CS2100 | Architecture Culture I.

Third term — 3GAX	Fourth term — 3GBX
<p>Vertical studio — 6 units Prerequisite: DS1201</p> <p>Cultural Studies elective — 3 units Prerequisite: CS2201</p> <p>AS3222 — 3 units Design Development and Documentation Prerequisite: AS3201 and AS3302</p> <p>AS3230 — 3 units Practice Environments: Contracts, Liabilities, and Business Models</p>	<p>Vertical studio — 6 units</p> <p>CS2410 — 3 units Thesis Research</p> <p>Elective — 3 units</p> <p>Elective — 3 units</p>

Students are required to submit a portfolio at the completion of the 3GA studio prior to advancing into the third term.

Students are required to complete all 3GAX and 3GBX courses prior to advancing into DS1420 (4GAX).

Fifth Term — 4GAX (summer)
<p>DS1420 — 9 units Graduate Thesis Prerequisite: CS2410</p> <p>Elective ⊗ — 3 units</p> <p>Elective ⊗ — 3 units</p>

⊗ Students may apply for CPT units after completing the 1GB term. Only 6 units of electives can be used for CPT. Students wishing to apply for CPT units must enroll with the Registrar and Academic Counselor's Offices. Approval for coursework is made by the Director's Office.

Post Graduate Programs
1 Year (3 Term) programs

SCIFI (Southern California Institute for Future Initiatives)
Peter Zellner and David Bergman
Program Coordinators

The SCI-Arc Future Initiatives (SCIFI) is a one-year (three-term) post-professional degree program leading to a Master of Design Research (M.DesR) in City Design, Planning and Policy. SCIFI is open to applicants with a professional degree in architecture, urban design and planning or landscape architecture. The program requires attendance in the fall, spring and summer terms.

As an intensive research-based, post-professional degree program and think tank dedicated to generating contemporary approaches to large-scale urban architecture, SCIFI’s curriculum takes a sequential approach to understanding and rethinking city design-making. Students focus on identifying adaptive and holistic—rather than rigid and segmented—responses to economic, social and environmental pressures. As a center for urban discussion, the program connects students, academics, theorists and architects with public agencies, as well as those in private development, to generate debate regarding the role of cities and urban systems.

Established in 2005 to compliment their programs offered, SCIFI draws on the expansive resources of the school its faculty and the surrounding community. It promotes and extends its academic mission nationally and internationally via public events, exhibitions and competitions. Culminating in the production of a final semester terminal project and research, students work with core and visiting faculty to generate an exhibition and publication aligned with the program’s ongoing pedagogical mission.

Course structure

First Term (fall)	Second Term (spring)	Third Term (summer)
DS1500 — 6 units Design research studio	DS1501 — 6 units Design research studio	DS1502 — 6 units Design research studio
CS2200 — 3 units Seminar	CS2501 — 3 units Seminar	CS2502 — 3 units Seminar
CS2600 — 3 units Seminar	CS2601 — 3 units Seminar	Elective — 3 units
VS2500 — 3 units Interactive Mapping & Motion Graphics	Elective — 3 units	Elective — 3 units

EST[™] (Emerging Systems and Technologies | Media)

Marcelo Spina

Program Coordinator

SCI-Arc Emerging Systems and Technologies | Media (EST[™]) is a one-year (three-term) post-professional degree program leading to a Master of Design Research in Emerging Systems and Technologies | Media. EST[™] aims to define new platforms for design innovation, fusing digital and physical research within the rapidly evolving fields of computation, material fabrication and advanced building systems.

An intensive design and research laboratory uniquely tailored for applicants with a professional degree in architecture, engineering or industrial design, EST[™] focuses exclusively on technology as it applies to the present and future of design, computation, media, digital fabrication, robotic manufacturing, sustainable engineering, material ecologies and novel tectonics.

Newly constructed for this program, the SCI-Arc Robot House is the most progressive facility of its kind in the US academic environment and is among one of the world's most advanced facilities as well.

Utilizing this and other platforms, EST[™] faculty and students explore new production paradigms, envisioning the future of synthetic materials, free form assembly and automated manufacturing, in close collaboration with partners both inside and outside the architecture building industry. Testing new levels of environmental performance that will advance design practices in the 21st century, EST[™] students are prepared to successfully integrate formal, technical, logistical and material processes into advanced architectural design.

Course structure

First Term (fall)	Second Term (fall)	Third Term (summer)
DS1700 — 6 units Design research studio	DS1701 — 6 units Design research studio	DS1702 — 6 units Design research studio
CS2201 — 3 units Theories of Contemporary Architecture 1	AS3601 — 3 units Prototyping 1	AS3602 — 3 units Prototyping 2
VS4300 — 3 units Coding Form: Computation, Scripting, and Programming	Applied Studies Seminar — 3 units (as assigned)	Elective — 3 units
Applied Studies Seminar — 3 units (as assigned)	Visual Studies Seminar — 3 units (as assigned)	Elective — 3 units

Course Descriptions

GENERAL STUDIES

The Bachelor of Architecture degree program at SCI-Arc includes a fully-integrated required General Studies curriculum of 36 units for a total of 45 units of non-architectural content. The General Studies curriculum has recently been developed, beginning in Fall 2011, and represents a fresh, innovative approach to teaching a breadth of knowledge and critical thinking skills in an institution of higher learning.

The General Studies curriculum directs non-architectural content as a two-pronged approach: one, an intensive series of developed courses at the Foundation level; the other, a more flexible and open series of one-time elective seminars taught by leading thinkers, writers, theorists and practitioners in a wide spectrum of fields and subject interests from across Los Angeles and the Southern California region - from real estate development to biomimicry, media culture to particle physics. By preparing students in the first years to think critically, engage other areas of thought and discipline directly, and to acquire basic knowledge through reading, writing and iteration in the first prong, it is the implicit intention of the second prong to encourage students to understand and uncover the inherent complexity and expertise required in more specific fields. Armed with this practiced understanding, the student is uniquely prepared to meet the expected standards of their thesis work as well as the forms of complex and specific engagement within the field and the profession of Architecture. The General Studies curriculum necessarily includes a permanent course in the history of ideas to serve as the cornerstone for this program, allowing students to see and critically understand the range, form, history and organization of human concepts. As with all schools and universities, it is SCI-Arc's hope that General Studies will empower and nurture independent and creative thinking.

Core General Studies Seminars

Undergraduate

GS7010 | Introduction to Design Cultures

This course serves as an introduction to the immense variety of pathways available to students as they move ahead in the world as a designer and, possibly, as an architect. The aims of the class are to expose students to a broad range of design work in the fields of furniture, interior space, set design, exhibition design, product design, and landscape, and to develop in them the eye and senses of the curious and critical observer of the products of design culture.

GS7011 | Collegiate Writing

The course helps undergraduates improve their writing and composition skills. Students read basic literary texts, surveying a variety of writing styles. Students are given

a number of short writing assignments including essays, expository prose, non-fictional writing and creative writing. Students will conduct research based on primary and secondary sources; learn basic library skills and rules of style.

GS7012 | Introduction to the Physical World

This course introduces students to the physical properties governing works of architecture and their material making. Drawing upon Physics, Chemistry, Biology, and Philosophy, the class examines concepts relating to energy and forces. These include gravity and thermal forces, material qualities such as brittleness and flexibility, reactions between forces and materials such as tension and compression. Properties and performance of materials are investigated through the development of a series of physical models and a final term paper.

GS7013 | Visual Rhetorics

This course is aimed at teaching students the ways and means of argumentation using visual and cultural techniques and strategies. Beginning with an overview of classical rhetoric – Plato, Aristotle and the Sophist logos, students will be introduced to the ways in which visual media communicate and express through arrangement, emphasis, clarity, conciseness, tone and ethos. Students will examine and analyze the visual rhetorics of charts, paintings, sculpture, diagrams, films, ads and web pages.

GS7014 | Humanities 1: Premodern to Modern

This introductory course surveys ancient to pre-modern cultural production with a framework that extends beyond a normative Western trajectory with an interest in tracing parallel histories in disparate geographical and cultural locales. The course examines art, theater, music, fashion and literature in ancient Greece, Rome, Africa, Egypt, Asia, Europe and beyond. This course is reading-based.

GS7015 | Advanced Calculus and Trigonometric Functions

The main focus of Trigonometry is on nonlinear functions, right triangle properties, trigonometric functions, and advanced algebra. Through the study of trigonometry, the student will expand his/her understanding of mathematical concepts and apply advanced algebra techniques to solve problems including identities, logarithms and exponents.

GS7020 | Humanities 2: Modern to Contemporary

This introductory course surveys modern to contemporary cultural production understood as global phenomena. The course examines art, music, fashion, theater/film, and literature as well as other practices of creative expression that particularly characterize modernity and beyond. This course is reading-based.

GS7021 | The History of Ideas

This course surveys a broad integrated history of human consciousness and the awakening of ideas, from the concept of monetary exchange to the idea of democracy to the valorization of ingenuity, and all points in between. Studied as a series of “cases,” the understanding of ideas is seen inclusive to all economic, social, cultural and political forces, and seeks to expose students to this basic complexity. This course is also taught with an eye towards aligned developments in the definition of knowledge and knowledge categories in pedagogical systems.

DESIGN STUDIOS

Core Studios

Undergraduate

DS1010 | 1A studio | Material Strategies for the Physical World

This first studio in a sequence of four foundation studios introduces the student to spatial problem-solving. A sequence of increasingly complex problems charge the students with working within two opposing knowledge-based fields: analytical and intuitive operations are applied to the study of materials, their potential for transformation, and their capacity to suggest ideas and intentions, organizational concepts, and abstract spaces. The interrelationship between the act of making and the process of execution is studied. The studio begins with an examination of two-dimensional problems, then focuses on problem-solving in three dimensions. Students are given the Emerging Professionals Companion along with updated Intern Development Program (IDP) information.

DS1011 | 1B studio | Conceptual Strategies for the Physical World

The premise of the second studio in the foundation sequence is that ideas, when deliberately assembled, become intellectual structures for conceptual strategies that oversee notions of spatial ordering systems and architectural form. The relationship between the conceptual and the circumstantial will be examined in a series of evolutionary and interrelated projects that guide the student towards an understanding of sophisticated notions of spatial structures and material considerations. Skills: Communication of spatial concepts, projection drawing, craft in model building and drawing. Concepts: Abstract programming, complex ordering systems, matrices.

DS1020 | 2A studio | Formworks: Sites and Contexts

Projects work within the variable conditions that determine the characteristics of a site, whether conceptual (e.g., musical score, text, painting, idea) or physical (e.g., location, geometrically described piece of property, legal boundary condition). Students explore the various conditional relationships that affect the reading and description of sites, and understand circumstance and environment as complex systems of information.

DS1021 | 2B studio | Frameworks: Programs

Students examine the structure of information that organizes a project. Consideration for varying weaves of interrelationships is studied through increasingly complex data sets. Students are challenged to work within specific conditions, as well as develop working processes that yield their own ideas for organizational operations regarding space, site, and context. Skills: Familiarity with AutoCAD and hand drafting, verbal presentation. Concepts: Analytical processes, work process/scenario planning.

DS1030 | 3A studio | Field Operations: Static Architectural Systems

The first studio of the core studio sequence locates the idea of architecture at the intersection of various systems of information: from technical to cultural, from visual to tactile. Students consider the uses of precedent and antecedent in their work, while the main investigation examines the impact of structure and material systems on site and building form, and the capacity to use transformation as a methodological tool to guide a rigorous approach to decision making.

DS1031 | 3B studio | Dynamic Architectural Systems

This studio introduces students to the comprehensive development of a building, from conception to large-scale detail, with an emphasis on the assimilation of building systems. Students examine interrelated systems that are able to both modify the spatial structure of a building and articulate expectations of their performance structurally, thermally, acoustically, and environmentally.

DS1040 | 4A studio | City Operations: Architecture in Critical Settings

The premise of this studio is that cities and buildings are largely shaped by a dynamic flow of interrelated cultural, social, political, and economic forces. Different cities are chosen by individual studio faculty and used as a basis for student projects. During the course of the term, students test the nature of interfaces between architecture and its various settings within the contemporary city. Individual and varied theoretical assumptions, within the separate design studios, are tested and developed as an integral part of the building design process.

4B | 5A | Vertical studio

Students develop projects that explore particular interests and topics. They have the opportunity to work with architects visiting the school and gain insight into a broad range of issues concerning approaches to building, the environment, technology, theoretical stances, and personal interests.

Undergraduate thesis

Devyn Weiser, Coordinator

DS1051 | 5B | Thesis Project Studio

The intent of the thesis studio is for student to demonstrate proficiency in making proposals for buildings that integrate knowledge from the principal disciplines in the program. Building Design, History, Theory and Humanities, Technology, and Visual Studies factor into the execution of a synthetic work of architecture. Students work with a committee consisting of representatives from each academic discipline and design a project selected from proposals developed in the prior semester.

M.Arch 1

DS1100 | 1GA studio | Fundamental Architecture 1

The first studio in a sequence of four foundation studios, this course introduces the student to fundamental issues of architecture. Through the study of the interrelationship of geometry, form, tectonics, and materiality, students are asked to continually develop and reconsider strategies for the production of architecture. The studio aims to endow students with a range of fundamental working methodologies. Through generative drawing, iterative material studies, generative modeling, descriptive drawing and analytical mapping and diagramming, students are expected to develop an intellectual framework as well as productive techniques for the development of spatial organizations, architectural forms and structural systems.

DS1101 | 1GB studio | Fundamental Architecture 2

This course is a continuation and expansion of the fundamental issues of architecture introduced in the first studio of the core sequence. The interrelationship between geometry, form, tectonics, and materiality is explored as it relates to overarching organizational systems and emergent systemic behaviors driven by programmatic content, structural logics and physical setting. Program and structure are considered to be creative components of design rather than fixed entities. Students are given the Emerging Professionals Companion along with updated Intern Development Program (IDP) information. The working methodologies introduced in 1GA are expanded and refined to allow each student to continue developing conceptual frameworks and productive techniques for the creation of architecture.

DS1120 | 2GA studio | Architecture's Integration

The course builds upon the awareness of the discipline and knowledge of architectural production by focusing on issues of Comprehensive Design. The studio is structured to hone each student's awareness of the complex and layered issues involved in an architectural problem. Elemental spatial constructs and organizational systems are seen as resulting from and reacting to forces of site, context and territory. These influences are considered physical and virtual, permanent and ephemeral, situational and circumstantial. Qualities of site, situation and environment, as well as cultural contexts, are considered as potential tools with which to challenge conventional approaches to architectural design.

DS1121 | 2GB studio | Architecture's Intervention

This studio examines the interrelationship between architecture and the city, deepening students' understanding of the ways in which architecture can both inform, and be informed by, the urban fabric into which it is woven. Through a full integration of design resources and research on various scales of operation—from housing to institutional and commercial building types that contribute to the formation of neighborhoods and public space—students are encouraged to design into existing urban conditions with a full understanding of the dynamic and interdependent forces of economics, ethnicity, culture, society, politics and infrastructure that have shaped the contemporary city.

M.Arch 2

DS1200 | 2GAX studio | Compositional Morphologies

Programmatics, geotechnics, structure, mechanics, commerce and environment are among the many fields which enable architecture to operate and perform. These technologies react to create Composite Morphologies that favors multiple and temporal approaches to design over planning and orchestration, and allows architecture to participate in and reorganize our constantly shifting culture. This studio looks at the contemporary architectural platform and operates as a laboratory for finding new possibilities of integrating a wide range of techniques and technologies. Conventions and standards in architecture are challenged through a rigorous examination of other models of design and production, such as fashion, art, film and industrial design, creating a nonlinear process that can respond to a number of parameters, while exposing the disparate strategies and technologies inherent in the production of architecture. Students are also exposed to issues concerning the relationship of the part to the whole, repetition and structure, as well as the notion of variation and systemic manipulation through topological evolution.

DS1201 | 2GBX studio | Generative Morphologies

This studio explores topological evolution and systems of design intelligence, with an emphasis on the broader infrastructural role that architecture can play in the city. With its ability to both perform and organize at the same time, architecture is able to have an effect that is felt at the scale of the urban landscape.

Graduate thesis

Elena Manferdini, Coordinator DS1420 (M.Arch 1 and M.Arch 2)

The graduate thesis program at SCI-Arc represents a culmination of the graduate curriculum and a significant test of the students' ability to synthesize and produce critical and rigorous architecture.

Upon successful completion of thesis prep, students are encouraged to strengthen their thesis arguments through the selection of a thesis advisor of their choice with whom they will work independently on their design thesis. Thesis advisors are not limited to SCI-Arc faculty: Students are encouraged to seek advisors from outside the institute in order to foster an intellectually challenging relationship. During the thesis term, students undergo a series of public reviews, with their advisor present, to evaluate progress and develop their projects in the light of the collective intellect of the reviewing body.

The SCI-Arc graduate thesis program culminates in a public two-day event in which students present their thesis projects to critics from all over the world. A celebration of academic achievement, the SCI-Arc thesis weekend is widely regarded as a major forum for the discussion of fresh insights and innovative concepts among noted theoreticians and practicing architects.

Jury panels comprising members of the international, national and local design community, along with SCI-Arc faculty members, discuss and critique the work in hour-long panel sessions. Following a question and answer period, the discussion opens to the attending audience members, other SCI-Arc faculty, students and community members.

Vertical studios

SCI-Arc's upper level studios brings students into contact with renowned architects from within the school and all over the world whose work has placed them firmly at the forefront of the discipline. Visiting instructors have included Peter Testa, Dennis McGlade, David Rubin, Skip Graffam, Lauri Olin, Robert Mangurian, Marry-Ann Ray, Tom Wiscombe, Eric Owen Moss, Ming Fung, Hernan Diaz-Alonso, Coy Howard, Wes Jones, Dwayne Oyler, Peter Zellner, Eric Kahn, Russell Thompson, Elena Manferdini, Ilse Ann Couture, Marcelo Spina, among others.

Recent vertical studios include:

DS 1215

Peter Testa

This studio explores for the first time the design potential of SCI-Arc's Robotics and Simulation Lab. Central to this studio is a focus on computational materials, robotic behaviors, human, and non-human forms of agency. A robotic system is not offered as a substitute for the body, but as an alternative site for understanding and potential investigation of architectural actions and operations. In this way the studio sets out to reconstruct, recompose, rewire, and redesign the architectural code into a 21st century form.

DS 1501 | OLIN Urban Rivers Studio

Dennis McGlade, David Rubin, Skip Graffam, Laurie Olin

This studio is divided into three phases that immerses students in the complex issues associated with urban river systems and specifically involve regional and local site analysis, land use programming, master planning, and detailed public space design.

DS 1501 | What's That Thing?

Andrew Zago

This studio takes as its project the International Architectural Competition for the Museum of Polish History, Warsaw. The project is for a new 20,000 square meter museum sited along Warsaw's historic escarpment along the Vistula river, bridging over a highway trench that was cut into the escarpment in the 1970's. The site – highway trench notwithstanding – is one of the most historic and picturesque areas of Warsaw. The museum will join a string of notable structures visible along the ridge of the escarpment. In addition to the museum itself, the project asks for the design of an extensive urban and park area in its immediate vicinity. Thus, while the studio will focus on the building design, there will also be urban, landscape, and infrastructural components.

DS 3195 | Coachangdi

Robert Mangurian, Mary-Ann Ray

Coachangdi is one of nearly 500 urban villages in Beijing. An estimated 1.5 million people, or one in ten Beijingers, live in these villages. This studio focuses on making clever additions and adjustments to Coachangdi. Coachangdi's future may depend on the success of this work. The kinds of projects include other kinds of housing, small scale projects such as public bath/bathroom, and other programs necessary to bring Coachangdi into the 'fold' of Beijing without losing its vitality and diversity. And Coachangdi's successful resistance to prosaic development can surely provide an example for other urban villages in Beijing and other Chinese cities.

DS 4000 (08) | Shells and Branes

Tom Wiscombe

This studio explores the potentials of non-uniform shell and membrane structures. Both shell and membrane within Modern architectural discourse have implied regularity and optimization, resulting in a limited range of morphologies and applications. For too long, the study of shells and membranes has been trapped by essentialist dogma, where force and gravity are expressed in a 1:1 relation. Using biology as a model, this studio looks at how complex systems are never pure, and how loose relationships between feature and behaviors, as seen in many organisms, can produce things which are exquisitely beautiful and also able to do work.

DS 4000 (09) | Stadium at LA Live

Eric Owen Moss, Ming Fung

This studio examines the prospect of a new downtown football stadium, integrated in the LA Live complex. Unlike many of the more conventionally constructed new stadia around the world, the hypothesis studied here will be that of a stadium with “no outside”...that is, the stadium will not be a free standing structure surrounded by the usual sea of parking, rather the concept involves the prospect of associating the new stadium concept with other adjoining uses already part of the LA Live venue. That means that entertainment, retail, office, housing, hotel and convention amenities, recreational options, theaters and museums, and parking will combine in a complex which becomes a “future” city within the city.

DS 4304 | XLAB

Hernan Diaz-Alonso

Working in a laboratory environment, this studio develops knowledge by investigating and applying the possibilities of emerging theories and technologies, as well as testing new design territories such as scripting, robotics, biogenetics, genetic codification, and cellular systems. Studio projects, alongside related design workshops and seminars, focus on the challenges of developing and expanding the domain of emerging technologies in the design and production of architecture.

DS 4320 | Vertical Studio

Coy Howard

This studio will broaden your intellectual understanding of aesthetics and increase the range of your skill sets in order to promote a more robust personal aesthetic. More specifically, through a set of readings, exercises, and projects we will challenge the current dominance of reductive abstraction as the sole acceptable aesthetic taught in architectural education.

DS 4322 | Solar Decathlon

Wes Jones, Dwayne Oyler

This is a three part studio. In committing its resources to the Solar Decathlon endeavor SCI-Arc has two goals. First, to win the competition on the terms set

by the sponsors, but then also to contribute to a larger vision of sustainable design, by discovering other ways to be environmentally responsible, beyond those already established as green orthodoxy. So, on the one hand, the studio works towards mastering the general knowledge, intellectual and manual skills, and technical expertise embodies in the ten official contests. On the other hand, SCI-Arc will leverage its own unique perspective to explore the larger picture and what strategies and tactics might reside outside the carefully delimited boundaries of the competition.

DS 4326 | LOS ANGELES BOULEVARDS:

Urban Typologies, Taxonomies, Archives & Amalgamations

Peter Zellner

This studio follows the format of the Ungers/Kolhoff experiment in order to develop the potential of the typological index of archive as a generative urban design tool. In particular the studio focuses on the status the boulevard in Los Angeles as a means of testing new parametric and generative design tools to achieve innovative urban designs. Applying these techniques to LA's existing city fabric, our goal is to move the typological approach and work of the Ungers/Kolhoff studio forward via the introduction of contemporary attitudes and tools which allow for the blending, amalgamation and hybridization of known or found urban types.

DS 4368 | Jerusalem(s)

Eric A. Kahn

The Studio, by its name alone, 'JERUSALEM(S)' suggests multiple readings and a chance to offer insights, as foreigners capable of opening new, plausible (not necessarily probable) scenarios. These scenarios might begin to broker ideas normally outside and perhaps place them alongside the discussions already in progress.

DS 4369 | DEEP

Elena Manferdini

The students in this Studio design a contemporary façade for Palladio's Palazzo della Ragione in the city of Vicenza, Italy. The goal of the class is to broaden students' intellectual and historical understanding of architectural envelopes and increase their range of technical skill sets. Building upon the contrasting geometrical and visual techniques that Palladio mastered in the Basilica, students will develop digital and analogical procedures to create innovation in serial fenestrations. The focus for the students is to achieve a new material depth for contemporary facades. The work of the class as a whole critically participates on the current debate about the implications of advanced digital tools for the production of architecture and questions issues of superficiality in relationship to stable forms in architecture. The class researches an alternative to traditional component assemblies, curtain wall grids and structural expressionisms for architectural facades.

DS 5000 (02) | Unboxed

Lise Ann Couture

This studio is challenged to reconsider the architecture of the Big Box art museum and to offer counterproposals for the new Whitney Museum of American Art scheduled to relocate within the next 3 years. The new Museum is to be located on a site in Manhattan's Meatpacking District that is traversed by a portion the Highline, the former elevated railway recently rehabilitated / domes-ticated as a public park by Field Operations and Diller Scofidio + Renfro. As a general methodology the monolithic is to be reconciled with the compositional. Massing concepts that negotiate between site conditions and interior configuration will be generated by the students then overlaid and merged with articulation strategies derived using various digital techniques.

DS 5000 (08) | Figuring Math

Marcelo Spina

Turning its attention towards both primitive and figure, the studio's intention is to generate new cumulative mass and interstitial networks. Based on a simple logic of aggregation and growth of self-similar primitives, their formal accretion will promote a diversely unified special atmosphere that defy the distinction between holistic and discrete, figure and figuration, with emerging and ever-shifting number of massing configurations, group outlines and individual silhouettes as a possible outcome. "Figuring Math" is as much about the mathematics of form and materials as it is about the necessary intuition associated to their formation.

CULTURAL STUDIES

Cultural Studies at SCI-Arc is uniquely tailored to meet the educational needs of emerging architects and designers in the contemporary field. As a necessary step in their enculturation, "Cultural Studies" at SCI-Arc refers to the study of architectural cultures: design cultures, building cultures, disciplinary interiority and exteriority, canons and traditions, critiques and avant-gardisms. In this manner, it is both fundamental and interdisciplinary: the core program at both the undergraduate and graduate levels is comprised of courses in Urban Studies, Visual Culture, Philosophy, New Media, Critical Theory, and all aspects of Architectural History, Theory and Criticism.

After completion of their core studies, students may enroll in a series of advanced seminar electives which represent the most current conceptualizations, discourse and production in architectural studies. In addition to courses offered by regular faculty, the Cultural Studies program seeks authors and critics worldwide to share their recent work in this forum. Many courses are offered in conjunction with publications and conferences, or enlist the active participation of students in research endeavors. Therefore, while some elective courses do recur, all are subject to shifts in content and concentration.

Core Cultural Studies seminars

Undergraduate

CS2012 | History of Architecture 1: Premodern to Modern

This course introduces students to the history of world architecture by examining the origins and elaboration of human settlements and architecture from prehistory to the modern era. Particular attention is given to the evolving status and role of the architect and the discipline of architecture as well as to the development of architecture as an autonomous category of cultural artifact. Particular emphasis is placed on global and western traditions in architecture. This course is a lecture survey course.

CS2024 | History of Architecture 2: Modern to Contemporary

This course tracks the development of architecture and urban culture from the rise of modern institutions and practices, through the era of industrialization, to the current day. This course pays particular interest to the influence of modern materials, methods and tectonics, as well as concomitant cultural changes in theory and discourse. This course is a lecture survey course.

CS2030 | Introduction to Urban Systems

This course examines the city as a dynamic process composed of so-called “open systems” —infrastructural, economic, environmental and socio-cultural—that interact with each other. Through an exploration of their interrelationship, these systems are understood as historically determined and are presented in the class in rough chronological order, from water and sewage systems to fiber optic and wireless technologies. This course is a non-architectural content course.

CS2031 | Philosophy of Technology

This course provides a historical survey of the philosophy of technology, using Martin Heidegger’s seminal lecture, “The Question Concerning Technology,” as a guide. Examining the ways in which technology has been addressed through time by different philosophical and critical traditions, from pre-Socratic discussions of “techne” to Deleuze’s “machinic delirium,” this course charts the progress of the human relationship with technology and the nature it mediates. This course is a non-architectural content course.

CS2040 | Introduction to Critical Studies

This course tracks developments in architectural theory and discourse from the era immediately following WWII to the present day. Students read and dissect primary texts from significant fields of study including postmodern studies, phenomenology, structuralism, deconstruction, post-structuralism, feminism, contemporary materialism and the current discourse on architectural effects and

figures. This course introduces students to architectural argumentation through critique, reviews of ongoing installations and exhibitions, including those of the SCI-Arc Gallery, and attendance at public lectures. This course prepares students for their thesis work.

CS2050 | Thesis Project Research

The Thesis program is fundamentally about the development of a set of beliefs. Students are expected to have a cumulative knowledge base paired with a unique and passionate perspective on their work. Thesis preparation asks that each student stake a position based on her or his perspective and hold it up against a set of widely held beliefs. The thesis program involves the development of a thesis regarding architecture, as well as a design program and project that explores and tests it. The thesis is more than a theme, a site, or a specific type of program. It is a proposition regarding architecture that takes a specific position in a field of possibilities. It is a position that requires architectural exploration in order to understand it, test the possibilities, and recognize the limits of its application.

Undergraduate Writing Clinic

This writing clinic is an appointment-based non-credit workshop where students can receive help on work in progress. A faculty member provides one-on-one help with formulation, articulation and structure of student ideas and helps the student to discover the appropriate expression of written documentation.

M.Arch 1

CS2100 | Architecture Culture 1

This course introduces students to the history of the discipline of Architecture in Western and non-Western culture from the Vitruvian tradition, as exemplified by Alberti, to the beginning of the “critical,” or postwar period. The course considers architecture as both a profession and a discipline, and explores its relationship to the society, economy, politics, and cultural developments of this time period. Theories of aesthetics and space are covered, as well as the rise of the academy, the inclusion of landscape and other arts in architectural studies, and the subsequent fragmentation—from the Enlightenment onwards—of Classical ideals into broad questions of origin, type, form, function and identity. Throughout the course, students will also be introduced to a range of different possible histories of architecture—vernacular histories, formal histories, and geographic histories that have been heretofore considered “outside” of the discipline. Students will be challenged to consider whether these forms and meanings have had a critical impact in the discipline, and to imagine a set of alternative canons and agencies that could be implicit in each. This includes a six-week module on non-Western and Regional Architectural Traditions, at which attendance is mandatory for all graduate students at SCI-Arc. The course culminates in a 12-week research project in which students will gain and present a thorough knowledge of

one historic building (pre-1949) in order to further the investigations of this class into architecture's disciplinary identity. All research projects will be archived in the SCI-Arc Library.

CS2101 | Introduction to Contemporary Architecture

This course introduces students to their more immediate heritage in the emergent architectural discipline, and to its concomitant problematics in the modern and postmodern eras. In the first section of the semester, the discipline is considered in relation to the radical changes brought about by social, political and economic events from the Industrial Revolution to World War II. The linkage of architecture and morality, the rise of the metropolis, the development of urban design, and the adoption of the machine as model and metaphor are key themes of investigation. In the second section, the consequences of the transition from the modern to the postmodern are considered in architecture. Emphasis is placed on the canonization of modernism into high modernism following World War II and its subsequent critique and decline. Throughout the course, issues of race, colonization, class and gender are understood as constituent factors of global—and hence architectural—culture.

CS2120 | Architecture Culture 2

This course concentrates on the ways in which the shift from philosophy to “theory,” following the events of 1968, directly affected the intellectual life of architecture from the 1970s to today. Through an examination of scholarly journals, school curricula, and intellectual discourse and debate in architecture, students are introduced to the rise and fall of these theory vanguards—their continuous critique and the influence it has had on the work of architects. Furthermore, given the significant challenges to critique in recent work, students are asked to consider its influence on the rapidly changing nature of contemporary architectural practice.

CS2121 | Urban Culture

This course of study presents students with a range of contemporary research methods for understanding the complex, multivalent and dynamic set of systems and pressures known as “the city.” In order to provide rigor and intensity, the urban studies course is divided into 3 small seminars that align exactly with the sections of the 2GB studio. Through various methods and theories—from market research to scenario analysis to historiography—students are asked to formulate interpretations of urbanism and apply these to their studio projects. Because SCI-Arc innately understands the shifting nature of this discourse, the courses in Urban Studies endeavor to represent the most current paradigms and orientations.

CS2410 | Thesis Research (Offered for M.Arch 1 and M.Arch 2)

The Thesis program is fundamentally about the development of a set of beliefs. Students are expected to have a cumulative knowledge base paired with a unique and passionate perspective on their work. Thesis preparation asks that each in-

dividual stake a position based on their perspective and hold it up against a set of widely held beliefs. The thesis program involves the development of a thesis regarding architecture, that takes a specific position in a field of possibilities. It is a position that requires architectural exploration in order to understand it, test the possibilities, and recognize the limits of its application.

M.Arch 2

CS2201 | Theories of Contemporary Architecture 1

This course focuses on an emergent form of post-vanguard design practice that employs testing and prototyping to create design knowledge, or *design intelligence*. It details the emergence of this new intelligence paradigm through readings drawn from a variety of contemporary debates in philosophy, science, strategic gaming and other areas, before turning to a series of firm-specific case studies that explicitly address the role of intelligence in contemporary design practice.

CS2200 | Theories of Contemporary Architecture 2

This course tracks the short but intense history of architecture's transition from modernism to postmodernism to supermodernism. Within the context of the last three decades of the 20th century, contemporary architectural practices have been dominated by, and characterized by, different modes of communication. Through the rigorous study of architectural practices that have moved from an emphasis on meaning to one of immersive experience, this course focuses on the communicative potentials and critical explorations of contemporary architectural design.

CS2410 | Thesis Research (See M.Arch 1 CS2410)

Recurring Cultural Studies electives

Please note that these courses are not offered every semester and are subject to change. Check the latest course schedule for current course offerings, and visit my.sciarc for each semester's course descriptions.

CS 1314 | Theory and Criticality:

A Discourse on Issues of Contemporary Practice

William Huber

This course is meant to introduce mediascapes students to certain key terms, concepts, texts and authors, to clarify and extend the conceptual and aesthetic goals of their studio practice and to situate their work within contemporary discourses. Rather than pursuing an exhaustive survey of critical theory, we will explore certain concepts in new media theory, and then begin developing reading lists for each student which best reflect the concerns and motivations incipient in their studio practice.

CS 1349 | Cultural Geographies of Globalization

David Bergman

This course provides an investigation of globalization and its effects on the social, environmental and cultural conditions of the early 21st century. During the course of the semester we investigate definitions and measurement of globalization, the meaning of the global division of labor, and the creation of global culture. We also examine the impact of globalization on women and ethnic minorities around the world. Major issues such as economic development, resource conservation and environmental quality as well as tools for assessing change are a focus of the class

CS 1350 | Aesthetics of Globalization

Benjamin Bratton

This course examines how images become programs (computational, architectural, and political programs) and how programs become images. We consider what it means to design or designate the “becoming of the world” through programmatic images, while focusing on the role of subtractive and transitive architectural strategies (removal, elision, opacity, remoteness, relay, miniaturization, compression, expansion) may have in this. Is sustainability an end or a means, and if so for what?

CS 1357 | European Architecture 1990 – 2010

Lilian Pfaff

This course introduces the foremost representatives of each country and reads their seminal manifestos. In order to do so, it also reviews the historical, political, and social background of these contemporary architects and demonstrates how they perpetuate, or how they distinguish themselves from, the preceding generation.

CS 1358 | The Science Fictional Grotesque

Claire Phillips

This creative writing course introduces students to the writing of cross-genre works. Students are introduced to an overview of horror and SF, ranging from late 19th century grotesque romance to mid-80s ‘body horror’ and splatterpunk fiction and film. Particular emphasis is paid to the ‘abject,’ works predicated on hybridity, indeterminacy and alterity. Narrative strategies of transcendence and transgression are mined, machine and human binaries are explored and exploded. The potential of a resistive social imaginary is introduced through the criticism of Donna Haraway, Julia Kristeva and Slavoj Žižek. Projects include the short dramatic scene, short story and the film treatment. Materials for study range from the precursors of sf/horror genres, H.G. Wells and H.P. Lovecraft, to the body horror and splatterpunk works of Clive Barker, Octavia Butler, to the popular cross-genre works of David Cronenberg and Bret Easton Ellis. Readings are supplemented with film and television material.

CS 1362 | Theory in Practice

Aaron Bocanegra

This course seeks to clearly define individual practice within the context of cultural production, theory, and new economies. Readings will be tailored to expand on the questions posed by each student's work. In addition, we will cover the current state of cultural production and economy while positing new directions. An intense focus on media theory, technology and critique will permeate the conversation.

CS 1363 | History of Idea of Architecture

Wes Jones

This course examines the idea of Architecture as it has varied through time, from its first emergence out of the mists of prehistory, through the Greek coining of the term (arche-tecton) to the contemporary focus on its virtual dimensions. Students will explore the notion that architecture is neither a fixed concept, permanent for all time, nor an absolutely linear narrative of evolutionary development. The seminar will specifically study those points during its long history when the idea of what architecture is seemed to change. These changes will be charted, keyed to specific examples of relevant architecture from the period, and analyzed to identify contributing factors.

CS 1364 | Towards a New Ontology

Peter Macapia

This course traces the avant-garde discussions of architecture over the last two decades: performance, event, and effect developments or the culmination of a century and a half of radically new thinking about architecture's ontology. We look at the way critics and theorists but also architects have written about this new ontology. We look at the mathematical, scientific, philosophical, sociological and indeed political concepts that have inspired them. And we look at the way in which writers have continued to evolve and define architecture as a discipline from within these transformations.

CS 1368 | Op Arc: Vision + Visionality in Architecture

Jon Yoder

This course, Op Arc, traces a paradigm shift away from linguistic representation and toward visual performance in progressive architecture practice. Through lectures, readings, discussions, field trips, film screenings, and a culminating research project, this course familiarizes students with diverse techno-ocular tactics and invites them to creatively construct their own operative visualities. Instead of merely exposing oppressive scopic regimes, we will also analyze and project liberating and seductive scopic potentials for the field of architecture.

CS2302 | Urban Planning and Development

David Bergman

This course provides a basic background in the planning and land use system in California as well as providing exposure to elements of the land development process. Students gain an understanding of the land use and regulatory environment in which architecture and urban design takes place. The course centers on a weekly lecture along with an assignment related to interpretation of a zoning code.

CS 2501 | Code City

Tanner Blackman

This course examines the historic development of zoning in legal concept and practice in the early twentieth century, the municipal prerogative for restrictive zoning, zoning's regulation of land by use and design (setback + height = building envelope), deviations from the zoning code through the land use entitlement process, relation to layers of state-level development regulation, the problems of Euclidian zoning, and current moves toward inclusionary zoning and form-based code. Further, this course will help architecture students learn how to read, maneuver through, and get around code, emphasizing the possibility for the creation of new typologies arising from changes to a jurisdiction's zoning code. Finally, this course examines widespread municipal movements to either wholesale rewrite zoning ordinances or streamline code, with special attention to recent and pending code amendments in the City of Los Angeles, including green building, signage, landscaping, open space, mansionization, small lot subdivisions, specific plans, and supplemental use districts.

CS 2545 | A Subjective Version of the Recent Fiction of Architecture Design

Hernan Diaz-Alonso

This course develops the notion of geometric variations at a level of sophistication so that questions towards beauty and relevance can begin to be understood in a contemporary setting, and emerging paradigms of esthetics, the grotesque and the horrific. This course forces you to operate within an expertise towards intuition through software and advancement of the discipline through a precise contemporary understanding of architecture's reliance on surface, performance, and emotion to expand its discourse.

APPLIED STUDIES

The continuous definition and challenge of the multiple ways we make the world and its physical environment constitute the fundamental motivation of the Applied Studies program at SCI-Arc. Architecture is about the way we make worlds, worlds populated with subjects and objects, the definitions of which are always mediated by their cultural significance. Embedded in that act of "making" as the transposition and materialization of abstract ideas into spatial form, is the conception of technology as the necessary means by which that complex process takes place. The program offers a range of courses that critically engage tech-

nology and its spatial and social consequences. Foundation courses are offered in Physics and other sciences, building systems, structural analysis, tectonics, material development, acoustics, lighting and environmental control. Advanced courses explore the design consequences of the continued material and technical development of architectural proposals in the physical world. Elective courses offer the unique opportunity to further research and experiment with highly specific technologies that constantly redefine the conventions of architecture as a discipline and as a practice. Recent courses explore topics as diverse as parametric design, structural optimization, advanced geometry, composite tectonics, material research and development, complex assemblies, as well as ecology, biomimicry and solar performance.

Core Applied Studies seminars

Undergraduate

AS3020 | Environmental Systems 1

This course examines the two fundamental terms of context and environment. Beginning with an understanding of what constitutes the experience of place, this course develops a series of arguments with which to evaluate environments, the relationship between man and nature, and the architectural notion of what constitutes comfort. This course investigates to what extent the understanding of the environment is culturally and biologically determined. Students conduct their own research into a chosen area of climatology and develop schematic buildings proposals for various climactic conditions while making design decisions that conserve natural and built resources.

AS3021 | Structures 1

This course introduces students to principles governing structure such as force and unit stress, equilibrium and span, stiffness, and the reasons materials change shape when subjected to loads. Through a number of assignments, which include exercises in shear and bending moment diagrams and the calculation of equilibrium and internal forces in trusses, students are provided with a practical basis for understanding structures and their behavior.

AS3030 | Structures 2

This course offers an insight into methods of lateral load resistance within structures. The course examines concepts and definitions of lateral loads and the structural systems used to resist those loads, as well as the influence of various load-resisting systems on architectural design projects. By focusing on loads caused by wind and seismic forces within long span buildings, this course introduces students to building-code requirements pertaining to loads, lateral load-resisting systems, and moment-resisting reinforced concrete structural systems.

AS3031 | Environmental Systems 2

This course introduces students to the basic physical principles, design implications and performance of environmental systems by focusing on the behavior of lighting, acoustical, and climate modification systems within the built environment. The course relies upon the assumption that a careful integration of these elements within an architectural project, especially in the impact these elements have on building envelopes, can contribute significantly to improving the quality of our environment. Life-safety systems are also discussed, with a special emphasis on movement systems and egress. The course is divided into three independent modules, each of which addresses a single environmental system and is taught by a professional engineer specializing in the field.

AS3033 | Tectonics

This course explores the considerations and concepts that govern architecture within a tectonic tradition of craft, construction, detail, and assembly. The course examines the use of techniques and technologies and discusses them through contemporary precedents as well as by means of current designs and studio projects. By focusing on different construction principles, materials and their particular use, different methods of fabrication, assembly and detail, and the integration of mechanical and electric systems within the building envelope, the course focuses on their design impact in the overall conception and experience of a building. Exercises are carried out in model form both physically and digitally and simultaneously documented in CAD.

AS3040 | Design Development

This course investigates issues related to the implementation of design: technology, the use of materials, systems integration, and the archetypal analytical strategies of force, order, and character. The course includes a review of basic construction methods, analysis of building codes, design of structural and mechanical systems, development of building materials, and integration of building components and systems. Students are given the Emerging Professional's Companion and updated Intern Development Program (IDP) materials. Students develop a studio project from the previous semester, focusing on a detailed design of a single component of the building and the resolution of its structural system and building envelope as a whole.

AS3032 | Smart and Sustainable Systems

This course examines principles of sustainability by providing students with criteria for making decisions in architecture and urban design based on the preservation of natural and built resources—including important building and sites—and the creation of healthful communities. The course introduces a range of models and philosophies pertaining to a “sustainable” approach to architecture. Each session takes one notion of sustainability and explores it through a series of presentations, readings, and assignments. Case studies are used to examine the practical application of abstract ideals and more technical aspects

such as water and sewage management, thermal transfer strategies in buildings, and embodied energy in materials and construction processes.

AS3041 | Construction Documents

This course provides students with a comprehensive knowledge of the perfectible craft of construction documentation, a standardized language developed to clearly communicate complex designs to a third party and the architect's legal responsibilities, including the AIA Code of Ethics and Regulations Statutes. Students refine their skills through the production of a full construction documentation package, drawn in 2D and 3D CAD, for a small- to medium-scale single-story residence. Attention is placed on student's understanding of registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulations and other licensure concerns. This class also introduces students to the basics of cost analysis and construction management.

AS3050 | Practice Environments: Contracts, Liabilities, and Business Models

This course critically examines the role of professional architectural practices in the development and direction of architectural design, production, and pedagogy. As its basis, the course comprises a survey of the architectural profession—its licensing and legal requirements, its adherence to the constraints of codes and budgets, and its place among competing professions and financial interests. Attention is placed on student's understanding of registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulations, and other licensure concerns. Students gain an understanding of the architect's administrative role, and of issues relating to obtaining commissions, selecting and coordinating consultants, negotiating contracts, project management and issues of egress, code compliance and principles of life safety. They also develop the skills necessary to effectively communicate to clients and user groups. Trends such as globalization and outsourcing are analyzed in their capacity to substantially affect the practice of an architect. Students also receive the Emerging Professionals Companion along with updated IDP information.

M.Arch 1

AS3100 | Materials and Tectonics

This course introduces students to fundamental structural principles with a strong emphasis on materials, material properties and industrial processes. This course is an investigation into the anatomy of material and its potential use in architecture. The goal of the course is to provide students with a thorough understanding of materials, and of the design methods, techniques, and industrial processes by which they acquire meaning in an architectural and building context. By means of direct testing and experimentation, the course explores technical and

rational manipulations of traditional as well as novel materials, aiming to develop an expansive understanding of their physical nature, environmental impact and possible reuse.

AS3101 | Structures 1

This course introduces students to principles governing structure such as force and unit stress, equilibrium and span, stiffness, and the reasons materials change shape when subjected to loads. Through a number of assignments which include exercises in shear and bending moment diagrams and the calculation of equilibrium and internal forces in trusses, students are provided with a practical basis for understanding structures and their behavior.

AS3120 | Structures 2

This course aims to provide students with a comprehensive understanding of structural engineering and of the architect's role in the creative application of engineering principles. During the first part of the term, the course examines concepts and definitions of lateral loads and the structural systems used to resist those loads, and also considers the influence of various load resisting systems on architectural design projects. By focusing on loads caused by wind and seismic forces within long span buildings, the course introduces students to building code requirements pertaining to loads, lateral load-resisting systems and moment-resisting reinforced concrete structural systems.

AS3121 | Environment Systems 1: Light, Air and Sound

This course introduces students with the basic physical principles, design implications and performance of environmental systems by focusing on the behavior of lighting, acoustical and climate modification systems within the built environment. The course relies upon the assumption that a careful integration of these elements within an architectural project, especially in the impact these elements have on building envelopes, can contribute significantly to improving the quality of our environment. Life-safety systems are also discussed, with a special emphasis on movement systems and egress. The course is divided into three independent modules, each of which addresses a single environmental system and is taught by a professional engineer specializing in the field.

AS3122 | Design Development and Documentation

This course focuses on construction systems, building technology, the use of materials and system integration. The course includes a review of basic construction methods, analysis of building codes including occupancy and life-safety issues, the design of structural and mechanical systems and familiarizes students with basic principles of sustainable design. Studio projects from the previous semester are developed, focusing on the detailed design of a zone of the building in terms of the resolution of its structural system and building envelope using three-dimensional modeling as well as drafting. Drawings at various scales are

produced to introduce students to the language and standards of details, wall sections and overall building representations, culminating in a comprehensive package of drawings. The course also introduces student to the basics of cost control including life-cycle costs. Students receive the Emerging Professionals Companion along with updated Intern Development Program (IDP) information.

AS3123 | Environmental Systems 2: Sustainability and Complex Envelopes

This course focuses on advanced building systems and technologies. With a special emphasis on high rise construction, students investigate issues pertaining to vertical movement systems, advanced structures and their relation to surface and building envelopes. The course also covers other building services such as plumbing, electrical, security and fire protection systems and their effects on architectural design. Through a series of lectures, group presentations and individual assignments, current typologies and specific architectural precedents are researched and discussed, with a special focus on glass, curtain wall systems, sustainable, energy efficient systems, and technologies of construction and assembly.

AS3130 | Practice Environments: Contracts, Liabilities and Business Models

This course critically examines the role of professional architectural practices in the development and direction of architectural design, production, and pedagogy. As its basis, the course comprises a survey of the architectural profession—its licensing and legal requirements, its adherence to the constraints of codes and budgets, and its place among competing professions and financial interests. Attention is placed on student's understanding of registration law, building codes and regulations, professional service contracts, zoning and sub-division ordinances, environmental regulations, and other licensure concerns. Students gain an understanding of the architect's administrative role and of issues relating to obtaining commissions, selecting and coordinating consultants, negotiating contracts, providing project management, and overseeing issues of egress, code compliance, and principles of life safety. They also develop the skills necessary to effectively communicate to clients and user groups. Trends such as globalization and outsourcing are analyzed in their capacity to substantially affect the practice of an architect. Students also receive the Emerging Professional's Companion along with updated Intern Development Program (IDP) information.

M.Arch 2

See M.Arch 1 section for other core seminar descriptions.

AS3200 | Advanced Tectonics

This course looks at the new ability of architects to design, develop and produce structural assemblies for highly specific performances and applications. The course explores new materials, as well as the integral manner in which building systems and structures are produced—from design idea to fabrication and erection—to precisely fit designers' specifications and to provide optimized performance.

AS3201 | Advanced Building Systems

This course introduces students to innovative methods of construction, fabrication, structuring and assembly enabled by the advent of new technologies. The class focuses on issues pertaining to structure and its relation to surface and building envelope, with an emphasis on the instrumental and conceptual shift from two-dimensional forms of representation and documentation, to three-dimensional systems based on material performance and force flow simulation and their consequent impact on architecture's relation to the building industry. Current typologies and specific precedents of architectural realization—and their integration of geometry and ordering systems with systems of construction and assembly—are discussed through a series of lectures, group presentations and individual assignments.

AS3222 | Design Development and Documentation

This course focuses on construction systems, building technology, the use of materials and system integration. The course includes a review of basic construction methods, analysis of building codes including occupancy and life-safety issues, the design of structural and mechanical systems and familiarizes students with basic principles of sustainable design. Studio projects from the previous semester are developed, focusing on the detailed design of a zone of the building in terms of the resolution of its structural system and building envelope using three-dimensional modeling as well as drafting. Drawings at various scales are produced to introduce students to the language and standards of details, wall sections and overall building representations, culminating in a comprehensive package of drawings. The course also introduces student to the basics of cost control including life-cycle costs. Students receive the Emerging Professionals Companion along with updated IDP information.

AS3230 | Practice Environments: Contracts, Liabilities and Business Models

This course examines critically the role of professional architectural practices in the development and direction of architectural design, production and pedagogy. As its basis, the course comprises a survey of the architectural profession—its licensing and legal requirements, its adherence to the constraints of codes and budgets, and its place among competing professions and financial interests. Attention is placed on student's understanding of registration law, building codes and regulations, professional service contracts, zoning and sub-division ordinances, environmental regulations and other licensure concerns. Students gain an understanding of the architect's administrative role, and of issues relating to obtaining commissions, selecting and coordinating consultants, negotiating contracts, project management and issues of egress, code compliance and principles of life safety. They also develop the skills necessary to effectively communicate to clients and user groups. Trends such as globalization and outsourcing are analyzed in their capacity to substantially affect the practice of an architect. Students also receive the Emerging Professionals Companion along with updated IDP information.

AS3302 | Advanced Structural Systems

Bruce Danzinger

This course is a lecture class in structural engineering design of unconventional structures for architecture students. The course will examine how architectural form can be derived from force flow and load path. The class content includes the modern history of structural engineering and architecture, structural models, structures in nature and demonstrations of analysis techniques. Established structural systems such as longspan trusses, arches, vaults, membranes, shells, tension structures, space frames, folded plates, diagrids, pneumatics and cable nets will be studied through evaluations of built projects, current designs and class assignments. The course will focus on engineering fundamentals for quick evaluations of structural concepts to develop schemes. Physical models and sketching will be used extensively.

Recurring Applied Studies electives

Please note that these courses are not offered every semester and are subject to change. Check the latest course schedule for current course offerings, and visit my.sciarc for each semester's course descriptions.

AS 2305 | Free Form Fabrication

Peter Testa

This course challenges specialization to posit design, engineering, material science, robotic fabrication, and construction as a continuous process open to radical recombination via reprogramming of process sequences, tools and practices. In this way authentic new developments in architecture may be affiliated to on-going transformations in material culture and manufacturing that are coming to characterize the third industrial revolution

AS 2312 | Biomimetic Envelopes

Ilaria Mazzeloni

This course finds inspiration from the animal world and, through the analysis and understanding of specific examples such as termite mounds, pangolins, polar bears, bees, birds, etc., translates the learned principles to the design of building envelopes.

AS 2313 | Integrated Design Practices (BIM)

M. Zarmine Nigohos, Sarah E. David

This course explores new tools and techniques that allow students to develop innovative design solutions and methods. Critical to this development is an understanding of the interaction between various trade participants and the way in which project data is represented and exchanged. It is now mandatory that the designer understand and adopt a new paradigm in practice that transcends the two-dimensional and embraces three-dimensional and even four-dimensional representation. By becoming the leaders in shaping a building model that simulates design development, performance, trade coordination, construction

scheduling, fabrication, erection sequencing and cost estimation, the architect can redefine the concept of the “mater-builder” and carve out a new place in today’s design-build economy.

AS 2327 | Smooth Operator: Monolithicity Adventures in Composite Fabrication – Ramiro Diaz-Granados

This course is a hands-on fabrication seminar that focuses on the design and assemblies of advanced composites, specifically, moldless carbon-fiber assemblies. These material systems are inherently monolithic and potentially lightweight so the objective is twofold: 1) to investigate the tectonic potential of super-lightweight proto-structures and 2) to tap into the novel aesthetic regime intrinsic to these material systems. We will be working within a feedback looping protocol that includes digital and analog output.

AS 2328 | Materials Lab: From the Generative to the Tectonic Thomas Wiscombe, Peter Macapia

This seminar takes on the question of the cantilever as an expression of design, engineering, properties of materials, and the conceptual context which supports it as a disciplinary invention. In particular, students will examine the potentials and limitations of contemporary generative engineering techniques and their relation to various possible material outcomes. Using specific tectonic traditions as a point of departure, students design cantilevers which do not slavishly follow the results of optimization routines but rather rely heavily on individual interpretation. Ultimately, the seminar challenges deep-seated assumptions about minima, excess, and technology in structural thinking.

AS 2346 | Re-Thinking Tensegrity Andrew Holder

This course re-examines the architectural possibilities of tensegrity as a structural system. Carefully selecting materials and geometries to control the physics at play, students will work in groups to design tensegrity structures that privilege looseness, attitude and the sensible qualities of matter over more conventional structural outcomes like span, lightness, and rigidity. A pavilion at the Coachella Music and Arts festival will be used as a program to test the success of designs in terms of these attitudes and sensible qualities.

AS 2347 | Advanced Technologies in Contemporary Building Envelopes Narineh Marzeian

This course focuses on the inherent complexity of the building envelope as the receptacle of architectural intricacy. Through lectures, guest presentations and student research, the course addresses conventional and advanced building technologies for skin and envelope systems, from curtain walls to kinetic cladding and rain screens to current efforts in ventilated double skins for maximum environmental performance. By looking at different material assemblies,

environmental performances, as well as building economies the course dives deep into the world of facades, not only from the aesthetic potential to produce iconic images, but from their latent functional performance as environmental filters for human activity.

AS 2348 | On the Surface: Materiality and Media

Todd Gannon

Although it took place over ten years ago, issues raised by the MoMA exhibition “Light Construction” maintain a lasting influence on the contemporary architectural scene. The exhibited projects precipitated a distinct shift in focus for much of the architectural avant-garde. Turning away from the academic musings of Postmodernism and the arcane formal gymnastics of Deconstruction, the architects of the exhibition display a renewed interest in the possibilities inherent in the visual encounter with the architectural surface. This course focuses on the production, evaluation and cultural significance of the visual effects generated by these surfaces.

AS 2349 | F(x): The Farnsworth Formula – Functions, Parameters, Codomains

David Ross

The goals of this course are twofold; First: To leverage the design agency of parametric software (CATIA/Digital Project) through processing quantitative data and qualitative directives in a charged architectural environment – the Farnsworth House. Second: To augment and bind the host structure given contextual parameters of a new ‘informational model’ as well as with the introduction of additional program.

AS 2352 | AQUAME (m) brane w/ NASA Ames

Devyn Weiser

Working in collaboration with NASA Ames Research Center in Mountain View, California, this course explores technology transfer from space based on closed ecological systems to new models of terrestrial offshore infrastructure with a focus on the OMEGA system (offshore membrane enclosures for growing algae). This new technology will be a start point to develop a series of interconnected design, fabrication, deployment, recovery, and remediation scenarios of thin film membranes, and large scale construction logistics in both aquatic and aeronautic environments. Projects include researching, prototyping, and visualizing complex systems. This format offers the opportunity to participate in a real time project development and gain experience and expertise in making public one of the most ambitious alternative energy projects of recent times.

AS 2353 | Orders of Intensity

Peter Macapia

This course explores innovative structural design through morphogenetic and algorithmic forms of computation focusing on the problem of ordering networks of intensity. This course provides for us new computational tools to develop and invent

structural systems using advanced software acquired specifically for this course. One of these is a morphogenetic tool that allows us to set parameters and boundary conditions and look at various results for optimization. The other is a Finite Element Analysis tool (CS-FEM) that allows us to test and to define structural behaviors that are derived from experimental geometries that you create.

AS 2357 | Advanced Building Skins

Mark Dannettel

This course reviews all aspects of contemporary building skins, including: materials, systems, structural design, and technical performance. We will review the design and construction process for building skins, and consider the detailed roles and responsibilities of the numerous parties involved. We will also review the case studies from the actual design, fabrication, and installation of recently completed projects, including the hyper-faceted curtain wall for the Spertus Institute of Jewish Studies (by K+S), and the cable-net double façade for the Loyola Commons Building (by SCB & TransSolar).

AS 2358 | Structural Species

Peter Macapia

This course develops our own series of structural species using advanced computational tools. Students develop their own conclusions as to the aesthetic, spatial, and material features. In addition to short research assignments using genetic algorithms and other analytical tools, the seminar discusses the range of recent architectural advances made possible structural novelty. This opens up an interesting opportunity for research: on the one hand to explore the question of rigorous systems and on the other develop innovative spatial and aesthetic effects. The course introduces the student to explorations of structural morphology as a compliment to their architectural and theoretical research.

AS 2365 | Hydrophylic Morphology

Ramiro Diaz-Granados

This course focuses on “Rainwater Harvesting”, one of the several energy systems under the umbrella of sustainability, through the lens of hydrophilic morphology (water loving form and structure). Rather than seeking to resolve problems of optimization or efficiency, the charge is to produce semi-tectonic forms that open up novel sensibilities grounded in hydrophilia. Issues related to affect, sensation, legibility, and phenomena will be central driving factors alongside more pragmatic issues related to performance. The class studies specific models from various fields such as botany, biology, medical, military, etc. in order to harvest useful principles, qualities, techniques, and effects.

AS 2366 | RoCoCo: Robotic Confections & Confabulations

Devyn Weiser

The course is in four parts, examining painting techniques from Rococo through contemporary art; scripting/animating in Maya Dynamics, Paint, Fluids, Expres-

sions, and Processing; creating a palette of rheological/biorheological materials; and simulating material effects with the Staubli RX160 Paint Robot. Students experiment with and create new end arm effectuators for additive fabrication such as depositing, painting, spraying, and sputtering. The final project is a live demonstration of the experiment and documentation in a laboratory notebook. RoCoCo is the first class to use the groundbreaking SCI-Arc Robotics and Simulation Lab for purely aesthetic expression and in the context of an emerging post-digital material culture.

AS 2367 | Materials Lab II

Thomas Wiscombe

Based on the design and research done during the Fall 2010 semester, this course focuses on the realization of ‘Cantilever’, located above the main entry of SCI-Arc. Cantilever is an advanced monocoque construction featuring complex force flows and responses, developed using generative structural software intersected with the material logics of fiber-composite construction. It involves research into surface-based structure and structural adhesives, borrowing heavily from nautical and aerospace construction logics. ANSYS, a digital engineering tool is explored, with emphasis on local evolution of structure rather than universal solutions.

AS3304 | Biomimicry: Innovation in Architecture Inspired by Nature

Ilaria Mazzoleni

This course takes inspiration from the animal world and, through the analysis and understanding of specific examples such as spider webs, termites, polar bears, bees, birds, etc., translates the learned principles to the built environment. The course positions the question of how the environment interferes with the behavior and physiological evolution of animals and human constructions by learning lessons from the analysis and observation of the animal world. Today, we design and engineer dynamic systems to mediate the interaction between man and nature. This course illustrates how, by learning from nature, we can greatly enhance our design abilities and interference with the environment in a more sophisticated and less invasive way, creating a more sustainable form of living.

AS 7170 | Biomimicry II – Building Envelopes

Ilaria Mazzoleni

This course traditionally finds inspiration from the animal world conducts analysis and translates the learned principles to the design of building envelopes and in their integration at a larger city scale. The course focuses its attention to materiality and building technologies that, while continuing to learn from nature, can be used to design and build architectural envelopes that use nature in a structural and performative way.

VISUAL STUDIES

The Visual Studies program takes a central role in the education of communications techniques and required skills sets offered across the SCI-Arc course curriculum. It includes drawing tools ranging from generative diagramming to representation, project communication and project production documents. Students become familiar with established and emergent technologies and fabrication processes. The program sets the foundation for understanding the implications of working within the framework of communication systems. It fosters excellence, precision and critical engagement, and encourages highly creative work in which working methods, tools and their interfaces are interlaced.

The Visual Studies curriculum responds to the constantly evolving paradigms of architectural communication, introducing new tools within a progressively structured program. New media instruments—ranging from advanced digital modeling and animation to the equipment for computer-controlled fabrication processes—complement established methods of drawing, such as planimetric and sectional representations, constructed perspective and freehand drawing and sketching.

Core Visual Studies seminars

Undergraduate

VS4011 | Fabrications and Delineations

This course emphasizes the conventions of architectural projection for the description of form and space. The exercises build on the understanding of the logic inherent to deployed techniques, digital modeling and constructed geometry. This includes the fundamentals of Euclidean and non-Euclidian geometric principles, the construction of plan/section/elevation, axonometric and perspective drawing.

VS4020 | Technologies of Description 1

This course introduces the principles of digital drawing tools essential to 2D architectural representation. Working with primary digital representation tools, students learn both the application of projective techniques for architectural subjects and the conventions of operation and interface. Of central importance is instilling in students a critical sensitivity for the inherent bias and nature of each deployed medium.

VS4021 | Technologies of Description 2

This course examines and extends the analytical techniques and strategies for the study of architecture evolving from programmatic and structural systems to external factors affecting site or building. Work is centered on advanced digital 3D drawing and modeling techniques for the construction and evaluation of spatial

conditions. Students develop techniques for manipulating 3D data that include rapid modeling, texture mapping, lighting and rendering, and analog drawing.

VS4030 | Technologies of Description 3

This course is an introduction to advanced techniques in digital modeling and processes of fabrication. The work focuses on digital tools that enable the development of complex surfaces, procedural and parametric forms, and basic animation. Projects include work and production of digital models and material output using computer numerical control (CNC) devices as integral tools for the development of architectural conceptions.

M.Arch 1

VS4100 | Techniques of Representation 1

This course examines the theories and practices of representation and analysis of architectural ideas. It is structured to introduce the primary and auxiliary tools necessary to analyze and translate spatial concepts into two-dimensional representations. Students generate descriptive work using planar, plan/section, and axonometric projections as well as free hand and digital drawing tools and develop an understanding of specific characteristics and application potentials.

VS4101 | Techniques of Representation 2

This course forms the continuation of Techniques of Representation 1 by expanding on the conceptions of representational tools, emphasizing diagramming and spatial representations, and incorporating site analysis, topography and three-dimensional realizations. The program focuses on developing precision of intentions in the production of architectural drawings and instilling a critical sensitivity for the inherent bias and interface of each deployed medium of representation.

VS4120 | Advanced Computation 1

This course provides an introduction to advanced techniques in modeling and fabrication processes by focusing on digital drawing and production tools that enable the development of complex and dynamic surfaces, procedural and parametric forms, and the development of the relationship between architecture and geometry. Projects include prints of digital models using CNC and laser-cutter devices.

VS4121 | Advanced Computation 2 (satisfied by choice offerings)

The course forms the continuation of Advanced Computation 1, furthering the knowledge of digital modeling and fabrication techniques by incorporating animation as a dynamic mechanism that extends the spectrum of representational tools. Students are encouraged to explore the sequencing of tools and interrelations between idea and fabrication and space/time-related architectural processes.

M.Arch 2

VS4200 | Modeling, Tooling, and Computation

This course explores new software technologies that allow variables of time, reproduction, variation and repetition. The intention is to question the relationship of architecture to geometry and the idea of representation as a static organization of concepts. Students are encouraged to search for the possibilities offered by tools of representation and simulation as active mechanisms for the production of design, thought and products. Geometry is considered no longer as a static Cartesian system, but as encompassing an array of articulated geometrical variations, affected by new instrumental abilities.

Recurring Visual Studies electives

Please note that these courses are not offered every semester and are subject to change. Check the latest course schedule for current course offerings, and visit my.sciarc for each semester's course descriptions.

VS 2495| Visual Sonics

Aaron Bocanegra, Francisco Myles Sciotto

This course is an exploration of ecologies through the process of research, visualization and responsive audio. Data can be experienced in a myriad of manners, all of which have the capability to reveal information that is aggregate. Research is a performance of intellect, curiosity and rigor. It is not enough to simply write your ideas down or bookmark them on the web. Instead, we will work to experiment with research in a multiplicity of techniques – to refine the concepts being dealt with – as well as to prototype the design of how the research will be implemented.

VS 2496 | Nonvisual Studies

Andrew Zago

Visual representation is constrained by the limits of the imagination. The non-visual, on the other hand, exploits inherent structural potential within materials, geometries and logics while propelling work outside of what was previously conceivable. It orchestrates matter through the weaving and cross-weaving of rigorous techniques that lack a priori form. This course seeks new categories of form, realizable only through nonvisual, bottom-up means, and, consequently, new architectural possibilities for space, program, and tectonics.

VS 2497 | Visionary Landscapes

Elena Manfredini

This course explores current modes to represent utopian visions for contemporary architecture. The course closely analyzes famous historical examples of visionary architecture, and unravels the underpinning strategies used in these drawings to trigger viewers' fascination. The course focuses on the tactical elements that enabled this body of work to create utopian collective fantasies, rather than on the relative utopian contents.

VS 2500 | GIS SCI-Fi**Christine Safriet**

This course uses hands-on experience to provide students with essential mapping and spatial analysis skills. Core principals of Geographic Information System (GIS) will be taught through applied instruction on managing, processing, and interpreting special data. Students are not expected to have prior experience using GIS; however, a desire to learn and explore is expected.

VS 2501 | NOIRSAPE(S)**Eric Kahn**

This course investigates the convergence of nightlife, light, and the city as a rich – yet unconsidered aspect – of visual studies within Architecture. Los Angeles at night is a pulsing NOIRSCAPE; a faint-space of sulfur halide traces, scaleless sweeps of red brake lights, and luminous artificial electro-atmospheric horizons. Los Angeles's nocturnal overexposure is conducive to the production of the lurid and the sublime and has been the subject of intense poetic mining by novelists, cultural anthropologists, artists, climatologists, filmmakers and poets. NOIRSCAPE(S) induce an 'affected amnesiac state' and delivers and exquisite saturated luminal moment; it is an invitation for a clandestine excursion outside of linear time.

VS 2550 | Fundamentals of Spatial Interactive Computing**Wesley Smith, Graham Wakefield**

The course explores the rich potential of computationally enabled media and technology based art. It conveys a blend of technique, strategy and context but is ultimately focused on the pragmatics of production using the Max/MSP/Jitter software environment. Max is the predominant platform for interactive art-based research and performance. Background theory in the nature of image, sound and spatial form along with their underlying representations in digital technology and their diverse cultural expressions will be combined freely with creative methods to compose systems that analyze, synthesize, process and control them.

VS 2695 | Visualizing Urban Systems**Darin Johnstone**

This course is an exploration of ecologies through the process of research, visualization and responsive audio. Data can be experienced in a myriad of manners, all of which have the capability to reveal information that is aggregate. Research is a performance of intellect, curiosity and rigor. We will work to experiment with research in a multiplicity of techniques – to refine the concepts being dealt with – as well as to prototype the design of how the research will be implemented.

VS 3345 | Computational Materials**Peter Testa**

This course operates as an introduction to scripting computational geometry with an emphasis on performative, procedural, and generative design think-

ing. While the primary focus is on applying computational geometry to the early stages of architectural design, exercises will also introduce heuristics, readily accessible strategies, to assign 3D geometrical features informed by structural and environmental performance.

VS 3348 | Motion Graphics & Publication Design

Carolina Trigo

This course focuses on language systems as they apply to complex design and communication processes. Students employ strategic methods of thinking to articulate relevant sequential narratives culminating in a Studio Research Book and an alternate media piece (eg: video, sound, installation) and a website.

VS 3385 | Physical Computing

Chandler McWilliams, Nikita Pashenkov

This course is a close examination of the possibilities and consequences of physicalized computation. We begin by learning how to interrupt, critique, and create electronic circuits, with an eye towards developing a design methodology for engaging the potential of electronic systems and integrated circuits. Through a series of experiments with computation, electricity, electronics, programming, sensors, actuators, and electro-mechanical systems, this course aims to develop new ways of thinking about activated and computationally enhanced spaces in contrast to the static, mute, material constraints to which we have become accustomed.

VS4304 | Graphic Space

April Greiman

This course is about finding the appropriate visual hierarchy of words and images to match the content of a publication or presentation. From the onset, students are required to generate a mission or intent statement for their publication/presentation. From this initial overview concept presentation, the course format is in a general critique format. The focus is on the “making” of a future — or revising of an existing — presentation, portfolio, or thesis publication and/or presentation boards. The course also includes lectures on typography and letterform development, as well as the construction of a grid system.

VS4319 | Visual Imagination

Michael Rotondi

This course explores the range of relations between the visual imagination and the built and natural environments. Through lectures, readings, short assignments and class participation, students are encouraged to adopt innovative methods of visually thinking about the world and to be cognizant of any biases or limitations in their current ways of thinking. Individual lectures are modular rather than chronological, yet each builds on information presented in previous lectures to progress in a cyclical fashion from ways of knowing to, ultimately, methods of creation. Repetition is used as a device to show all of the different

perspectives from which you can see the same things — all the different ways the same concept can be defined in words and images used to illustrate particular points.

VS 8500 | Generative Design Processes

Jeremy Rotsztain

This seminar examines the role of agency within generative design processes. The course engages algorithmic techniques in the development of a computational methodology grounded in behavioral and swarm intelligence. While discussing the political and social role of agency, the workshop focuses on an abstract design methodology, recasting simple decision making ability into agents capable of self-organizing into an emergent intelligence. Unlike the typical application of swarm systems in design, this workshop will not engage simply in the mapping of these complex systems, but instead, we will mine the self-organizing potential of the systems to negotiate between a complex set of desires and parameters in the generation of architecture.

VS 8505 | The Accident

Andrew Zago

To the extent that architecture must resonate with contemporary sensibilities, the accident becomes a relevant new field of inquiry. With the aim of refining experimental techniques in architectural geometry and material, this workshop studies the structure and form of accidents through analog experiments and their digital documentation.

VS 8520 | Synthetic

Elena Manfredini

The work of this seminar aims to extend the potential of architectural surfaces to produce effect through the invention of new breeds of artificial matter. Students investigate the potential of synthetic materiality, seeking out novel sensuality, tactility and visual effect. The work of the class as a whole will critically participate on the current debate about the state of technology for the production of architecture, and will question the ideological and formal implications of various digital representational modes, introducing 3d scanning as privileged procedure to implement a digital model with analog material computation.

VS 8525 | Figure / Figurine

Florencia Pita

Expelled from the land of 'reality' and rebuffed for being lavish, figuration rebounds with allure. Suited to the current times of intense formalism, and granted embellishments, figuration expands into a vocabulary of candy colored surfaces and pretty shapes. The sources of this genre illustrate the imagination and expand the vocabulary. This class creates a series of 'characters' in Maya, which will be designed as small figurines; these figurines will be fabricated and photographed following the 'stop-motion' technique.

SCI-ARC COMMUNITY DESIGN PROGRAM

Since moving to downtown Los Angeles, SCI-Arc has sought opportunities to engage various local communities by spearheading a number of tactical, action-based projects, which enable students to collaborate directly with community agencies and undertake design/build projects. Each project deals with some form of practical and urgent problem solving circumstance. This might involve the creation of built structures or functional implements, or the imparting of vital skills to community members or at-risk groups.

Drawing upon the professional expertise of architects, urban planners, computer designers, visual artists, social scientists, cultural theorists, and others, SCI-Arc faculty and students have demonstrated a powerful capacity to impact specific social problems, working with intentionally short lead-times and reacting quickly to address immediate conditions. Whether coordinating with local government, city or community agencies, private industry, educational or philanthropic institutions, or local residents, SCI-Arc's Community Design Program is known for applying solutions that are at once uniquely innovative and personally felt.

SCI-Arc's Community Programs are made possible in part by a grant from the Los Angeles Department of Cultural Affairs.

Recent and upcoming projects include:

Fledge: A Double Gateway

Alexis Rochas

SCI-Arc proposes a unique partnership with the L.A. City Bureau of Engineering, L.A. Care Health Plan, and The California Department of Transportation engineers [CALTRANS] to support an educational initiative leading to the design, planning and implementation of an Architectural Interface resolving railing and fence requirements for the 7th Street Bridge over the 110 Freeway. The project seeks to establish a strong visual identity to North-South motorists while providing East-West passerby with a unique and secure experience as they traverse the bridge connecting Downtown Los Angeles and Central City West.

U.S. Department of Energy Solar Decathlon 2011 Competition

Wes Jones and Dwayne Oyler

A team of 70 students from the Southern California Institute of Architecture (SCI-Arc) and the California Institute of Technology (Caltech), which began as a two-person operation in August 2009, has been selected by the U.S. Department of Energy to participate in the 2011 Solar Decathlon. Twenty collegiate teams will participate in this competition to design, build, and operate solar-powered (non-carbon based energy generated) houses that are cost-effective, energy-efficient, and attractive. The Solar Decathlon attracts hundreds of thousands of people to the National Mall to tour the houses and learn about energy-efficient design, sustainable products, and available energy-saving technologies. The SCI-Arc/

Caltech Solar Decathlon 2011 team is partnering with Southern California industries to research, test, and prototype new emergent technologies that address zero net energy building designs by competing in the US Department of Energy's Solar Decathlon 2011 Competition.

Re-Envisioning the Los Angeles Downtown Arts District & Little Tokyo Community (JACC)

Peter Zellner

SCI-Arc and METRO invited members of the Los Angeles community to a Neighborhood Design Workshop exploring a more livable future for Downtown via walking, biking and mass transit.

The event was led and moderated by Peter Zellner, co-coordinator of the Future Initiatives post-graduate program at SCI-Arc. Attended by over forty members of the community the workshop focused on identifying key objectives for a more transit integrated community.

Watts Cooking: Imagining an Accessible Food Infrastructure

Michael Pinto

In July 2008, the Los Angeles City Council placed a moratorium on new fast food developments in a 32 square mile area of South Los Angeles. This was in response to disproportionately high levels of obesity and related health issues in the subject area. Though the Watts community was outside of the moratorium, the residents of this area face extreme challenges in accessing healthy food options. This project engaged the Watts community of Los Angeles and the need of healthier food choices. The class generated a renewed vision for a 2.5 acre farm in the community, owned by the Watts Labor Community Action Center.

Critical Mass

Ilaria Mazzoleni

A team of SCI-Arc students analyzed, dissected, and observed to find strategies of implementation for a bike sharing program in the Wilshire Center District: the most forward-looking LA district in terms of sustainability. The students were directly involved in the selection of the locations and of the pilot system preliminary design. A higher lifestyle standard is the qualitative aspect this partnership program is promoting and pursuing with the vision of nourishing Los Angelinos and tourists to seek a better quality of life in their urban environment and communality.

LARABA Student Design Competition: Downtown Los Angeles Dog park
Peter Zellner

SCI-Arc students Joseph Brown (MARCH 1 '13) and Hope Pollonais (MARCH 1 '13) won a competition organized by the Los Angeles River Artist and Business Association (LARABA) and SCI-Arc Faculty Peter Zellner to design a sculpture for Downtown LA's first doggy park. Located on an oddly-shaped 6,000-sq.ft. lot on the corner of Molino and 4th Streets, the Arts District Dog Park opened in summer 2010 and has since been a local success story.

A New Infrastructure: Innovative Transit Solutions for LA/2009
Peter Zellner

An open ideas competition invited architects, engineers, urban planners and students to propose new ideas for LA County's transit infrastructure. The Future Initiatives competition, developed in partnership with The Architect's Newspaper, encouraged entrants to develop solutions that dramatically reconfigured the relationship between transit systems, public space and urban redevelopment. Competitors were encouraged to work within the parameters of LA County's Measure R, which provided major new funding for infrastructure. More than 70 entries from five countries were received.

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