



**Number & Title of Course:** ARQU 6145: Research Techniques (3 credits)

**Course Description:** The course provides an introduction to the theory and practice of research processes in the field of architectural design. The course covers the principles, methods and techniques used in architectural research and is meant to provide fundamental skills needed for the student to prepare a Thesis/Capstone Theme Proposal that is delivered at the end of the semester.

**Course Goals & Objectives:**

The students will:

- **Understand** fundamental research concepts and their application to the field of architecture.
- **Learn** to identify the available bibliographical resources and archives, as well as, other institutional and media depositories that provide for rigorous research documentation.
- **Be Aware** of the ethical and legal principles related to information management processes.
- **Develop** necessary investigative skills to effectively select among different research modes and paradigms.
- **Cultivate** essential critical thinking skills needed to perform research.
- **Improve** and apply necessary writing skills prepare clear and concise research proposals.
- **Apply** the capacity to formulate a research inquiry that will serve as a draft of their personal *Thesis/Capstone Theme Proposal* required for graduation from the professional Master of Architecture degree.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A05: Investigative Skills	Ability
A07: Use of Precedents	Ability
A09: Historical Traditions & Global Culture	Understanding
A10: Cultural Diversity	Understanding
A11: Applied Research	Understanding
C02: Human Behavior	Understanding
C08: Ethics & Professional Responsibilities	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline**

TOPIC	WEEKS
▪ Research Paradigms	01
▪ Architectural Research Processes	02
▪ Quantitative Methods	01
▪ Visual Methods & Information Representation	01
▪ Research Theme Delimitation	01
▪ Research Theme Justification & Objectives	02
▪ Information Sources Management	02
▪ Research-Related Ethical & Legal Issues	02
▪ Thesis/Capstone Theme Proposal	02

**Prerequisites:** Admission to the Master of Architecture.



**Textbooks/ Learning Resources:**

- Albert; Robato Matilde (1984) *Redacción y Estilo* (sexta Edic.) San Juan: Editorial Marle.
- Creswell, John W. (2002) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd Ed.) Thousand Oaks: Sage Publications.
- Gray; Carole and Julian Malins (2004) *Visualizing Research, a Guide to the Research Process in Art and Design*. Burlington: Ashgate.
- Groat, Linda; Wang, David (2002) *Architectural Research Methods*. New York: John Wiley & Sons.
- George, A.; Bennett, A. (2005) *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press.
- Ramírez; Juan Antonio (2009) *Cómo escribir sobre arte y arquitectura*. Barcelona: Serbal.
- Wayne C Booth, Gregory G. Colomb, Joseph M. Williams (2003) *The Craft of Research*. Chicago: University of Chicago Press.
- Yin R. K. (2003) *Case Research: Design and Methods Study* (3rd Ed.). Thousand Oaks: Sage Publications.
- Zeisel, J. (2006) *Inquiry by Design: Environment/Behavior/Neuroscience in Architecture, Interiors, Landscape and Planning*. New York: WW Norton and Company.

**Offered:** Fall only / Annually

**Faculty Assigned:** Magdalena Campos / Humberto Cavallin / Jorge Lizardi / Florian Urban (visiting professor)



**Number & Title of Course:** ARQU 6991: Structural Systems: Reinforced Concrete Structures & an Introduction to Steel Structures (3 credits)

**Course Descriptions:** The course covers the study of reinforced concrete systems, including its mechanical properties, considerations regarding the advantages and disadvantages of its employment, and specificities about its design methods and their application in the construction industry. Emphasis is also made on technical standards, nomenclature and its use in the field, construction codes compliance requirements, and product specifications in construction documentation. The course includes an introduction to the general aspects and mechanical properties of steel structures.

**Course Goals & Objectives:**

The students will:

- **Understand** the variables to be considered in order to assess the advantages and/or disadvantages of reinforced concrete systems employed in the design of an architectural project.
- **Evidence** the minimum knowledge necessary to comply with relevant construction code requirements regarding the design of structural systems.
- **Learn** to evaluate the structural capacity of a components of a structural system.
- **Demonstrate** the knowledge of design procedures and applicable code compliance.
- **Achieve** the ability to communicate abstract, as well as, technical ideas in relation to the design and performance of a reinforced concrete system.
- **Develop** the ability to interpret technical documentation, such as: details, shop drawings, and specifications related to components of a structural system.

**Student Performance Criterion/a addressed:**

A04: Technical Documentation	Ability
B09: Structural Systems	Understanding
B12: Building Materials & assemblies	Understanding

**Topical Outline:**

TOPIC	WEEKS
▪ Reinforced Concrete Systems	
○ Historical Context, Description, Components	01
○ Mechanical Properties	01
○ Mixture analysis / UBC-1997 / ACI-318	01
○ Design methods / working Stress Method / Ultimate Strength Method Research Theme Delimitation	01
○ Deflection analysis / one-way and two-way slabs	02
○ Column Design	01
○ Foundation Design	01
▪ Steel Systems	
○ General concepts	02
○ Performance analysis	01

**Prerequisites:** Admission to the Master of Architecture



**Textbooks/ Learning Resources:**

- American Concrete Institute, *Building Code Requirements for Reinforced Concrete ACI-318*, Latest edition, Detroit, MI.
- Gaylord, Edwin., Gaylord, Charles & Stallmeyer, James. *Design of Steel Structures*. Third edition, McGraw-Hill, Inc. 1992.
- Nawy, Edward G., *Reinforced Concrete*, Ed McGraw Hill, 2002.
- Nilson, H. Arthur, *Diseño de estructuras de concreto*, McGraw Hill, ed. 12, junio 2001.
- Rokach, Abraham, *Theory and Problems of Structural Steel Design (LRFD method)*. Schaum's Outline Series, McGraw-Hill, Inc. 1991.
- Scaeffler, R. E., "Reinforced Concrete, Preliminary Design for Architects and Builders", Ed. McGraw Hill, 1992.
- International Building Code IBC 2009*. International Code Council Inc., IL 60478.
- American Institute of Steel Construction (AISC) 14<sup>th</sup> edition*. Steel Construction Manual, AISC 2011.

**Offered:** Fall & Spring; Annually

**Faculty Assigned:** Luis Daza



**Number & Title of Course:** ARQU 6225: Theory & Critical Analysis (3 credits)

**Course Description:** The course deals with the intersections of various fields of theory with the realm of architecture and urbanism. The student develops an understanding of hermeneutic logics present in philosophy, literature, history, anthropology, psychology, ethnography, and semiology, among others. The accrued knowledge is meant to serve as a tool that enhances the student's capacity to identify, comprehend, and solve architectural issues. The course content is meant to help establish the theoretical framework needed in order to undertake a critical design or writing exercise.

**Course Goals & Objectives:**

The students will:

- **Expand** his/her analytical capacity through interdisciplinary perspectives.
- **Be familiarized** with the exercise of reflection and the theoretical formulation through a varied repertory of interdisciplinary critical and theoretical texts.
- **Challenge** traditional research presumptions in the field of architecture.
- **Learn** of research methods of other disciplines.
- **Problematicize** and reflect on the research process and content to better understand the research activity itself.
- **Explore** possible applications of interdisciplinary research in the field of design
- **Strengthen** their research abilities through systematic search and the use of pertinent information.
- **Bolster** their debate and written research abilities.

**Student Performance Criterion/a addressed:**

A.01	Communication Skills	Ability
A.05	Investigative Skills	Ability
A.09	Historical Traditions & Global Culture	Understanding
A.10	Cultural Diversity	Understanding
C:02	Human Behavior	Understanding
C.09	Ethics & Professional Responsibilities	Understanding

**Topical Outline**

TOPIC	WEEK
▪ Grade Zero: Utopia	01
▪ Signs & Significations	02
▪ Phenomenology	02
▪ Economy, Society & Suburbia	02
▪ Gender & Sexuality	02
▪ Power, Memory & Architecture	02
▪ Patrimonial Imagination	02
▪ Wrap Up: Towards a Critique of Methods	02

**Prerequisites:** Admission to the Master of Architecture



## Textbooks by Topic/Learning Resources:

### Grade Zero: Utopia

- Kate Nesbit. "Introduction". En K. Nesbit, ed., *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. New York: Princeton Architectural Press (1996), pp. 17-70.
- Elizabeth Grosz, "Embodied Utopias", en *Architecture from the Outside: Essays on Virtual and Real Space*, Cambridge: The MIT Press (2002), pp. 102-118.
- Deborah Fausch. "The Knowledge of the Body and the Presence of History — Towards a Feminist Architecture." En Debra Coleman, Elizabeth Danze, and Carol Henderson, eds. *Architecture and Feminism*. New York: Princeton Architectural Press (1996), pp. 131-150.

### Signs & Signification

- Michel de Certeau, "Practices of Space", en Marshall Blonsky, ed., *On Signs*. Baltimore: The Johns Hopkins U Press (1985), pp. 122-145.
- Giulio Carlo Argan. "On the Typology of Architecture." En K. Nesbit, ed., *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. New York: Princeton Architectural Press (1996), pp. 240-247.
- Anthony Vidler, "The Third Typology", en K. Michael Hays, ed., *Architecture Theory since 1968*, Cambridge: The MIT Press (2000), pp. 289-294
- Ignasi de Solà-Morales Rubio, "From Contrast to Analogy: Developments in the Concept of Architectural Intervention", en *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory*. Princeton: Princeton Architectural Press (1996), pp. 228-237.
- Georg Simmel, "Puente y puerta", en *El individuo y la libertad. Ensayos de crítica e la cultura*, Barcelona: Península (1998), pp. 29-34.

### Phenomenology

- Celeste Olalquiaga, "Dust", en Brian Dillon, ed. *Ruins*. Cambridge: The MIT Press (2011).
- Susan Stewart, "Separation and Restoration", en Brian Dillon, ed. *Ruins*. Cambridge: The MIT Press (2011).
- Kenneth Frampton, "Corporeal experience in the Architecture of Tadao Ando", en George Dudds y Robert Tavernor "Body and Building: Essays on the Changing Relation of Body and Architecture. Cambridge: MIT Press (2008), 304-319.
- Anthony Vidler, "Theorizing the Unhomely", en Kate Nesbit, ed., *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory*. Princeton: Princeton Architectural Press (1996), pp. 572-576.

### Economy, Society & Suburbia

- Georg Simmel, "Las grandes urbes y la vida del espíritu", en *El individuo y la libertad. Ensayos de crítica e la cultura*, Barcelona: Península (1998), pp. 247-262.
- Henri Lefebvre, "Philosophy of the City and Planning Ideology", "The Specificity of the City", "Continuities and Discontinuities", in *Writings on Cities*. Oxford: Blackwell Publishing (2004), pp. 97-99, 100-103, 104-110, 111-118.
- Lilliana Ramos Collado, "City Branded in Shades of Noir", en *(in)forma. Arquitectura upr #6* (2012), pp. 22-29.
- Dolores Hayden. "What Would a Non-Sexist City be Like? Speculations on Housing, Urban Planning and Human Work." En Jane Rendell, Barbara Penner and Iain Borden. *Gender Space Architecture. An Interdisciplinary Introduction*. London: Routledge (2000), pp. 266-281.
- Saskia Sassen, "A New Geography of Center and Margins". En Richard T. LeGates and Frederic Stout (eds), *The City Reader*. London: Routledge (1996), pp. 208-212.
- Setha M. Low, "The Edge and the Center: Gated Communities and the Discourse of Urban Fear". En Low and Lawrence-Zúñiga. *The Anthropology of...*, pp.387-407.



### Gender & Sexuality

- Pierre Bourdieu, "The Berber House". En Low and Lawrence-Zúñiga. *The Anthropology of...*, pp. 131-141.
- Beatriz Colomina, "The Split House: Domestic Voyeurism". En Beatriz Colomina, *Sexuality and Space*. Princeton: Princeton U Press (1992), pp. 73-128.
- Henry Urbach, "Closets, Clothes, disClosure", en Jane Rendell, Barbara Penner & Iain Borden, *Gender Space Architecture*, London: Routledge (2007), pp. 342-352.
- Bruce Bégout, "El arte del motel", en *Lugar común: El motel americano*, Barcelona: Anagrama (2008), pp. 103-114.

### Power, Memory & Architecture

- Neil Leach, "The Architect As Fascist". *The Anaesthetics of Architecture*. Cambridge: The MIT Press (1999), pp. 17-32.
- Ascensión Hernández Martínez, "Las reconstrucciones postbélicas: de Ypres a Dresde", en *La clonación arquitectónica*, Madrid: Siruela (2007), pp. 65-96.
- Renato de Fusco, "La arquitectura como mass medium", en *Arquitectura como mass medium: Notas para una semiología arquitectónica*, Barcelona: Anagrama (1970), pp. 68-96.
- Simón Marchán Fiz, "La casa de cristal sólo quiere ser bella", en *La metáfora del cristal en las artes y en la arquitectura*, Madrid: Siruela (2008), pp. 55-73.

### Patrimonial Imagination

- Lilliana Ramos Collado, "Sueños patrimoniales: Chile reinventa su historia ante la UNESCO", *Romanitas*, Año 3 Núm. 1 (dic. 2008), en <http://humanidades.uprrp.edu/romanitas/espanol/volumen3/ramos.html>.
- Jean-Michel Leniaud, "El patrimonio recuperado. El ejemplo de Saint-Denis". En Rioux y Sirinelli, *Para una historia cultural*, pp. 373-388.
- Roland Barthes. "La Torre Eiffel". *La Torre Eiffel: Textos sobre la imagen*. Barcelona: Paidós (2001), pp. 55-79.

**Offered:** Spring only/ Annually

**Faculty Assigned:** Magdalena Campos / Humberto Cavallin / Jorge Lizardi / Florian Urban (visiting professor)



**Number & Title of Course:** ARQU 6310: City Studio (5 credits)

**Course Description:** The city studio acknowledges architecture as an act of place making in the city. It also recognizes the complexity involved in the collective planning of settlements in the context of contemporary needs. The semester begins with an introduction to basic concepts of urbanism and a general presentation of historical variations of particular city forms. Students will first participate in groups in the preparation of a schematic development plan. Specific agreements with local municipalities and institutions will provide site and context conditions. For the conclusion of the semester, students will then individually address schematic architectural design proposals related to the recommendations stated in the development plan.

**Course Goals & Objectives:**

The student will:

- **Understand** the reciprocal relationship that exists between the networks that comprise urban systems and individual architectural interventions.
- **Develop** the ability to complete the preliminary design development of an urban project.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
A05: Investigative Skills	Ability
A06: Fundamental Design Skills	Ability
A07: Use of Precedents	Ability
A08: Ordering Systems Skills	Understanding
A09: Historic Traditions & Global Culture	Understanding
A10: Cultural Diversity	Understanding
A11: Applied Research	Understanding
B01: Pre-Design	Ability
B02: Accessibility	Ability
B03: Sustainability	Ability
B04: Site Design	Ability
B06: Comprehensive Design	Ability
B09: Structural Systems	Understanding
C01: Collaboration	Ability
C02: Human Behavior	Understanding
C03: Client Role in Architecture	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline**

TOPIC	WEEKS
▪ Introduction to urbanism	02
▪ Collective urban development plan	06
○ context analysis and research	
○ integration of urban systems	
▪ Individual architectural proposal	06
○ schematic design	
○ integration of building systems	
▪ Final presentation	02





**Prerequisites:** Admission to the Master of Architecture

**Textbooks/ Learning Resources:**

- Alexander, Christopher. *A Pattern Language: Towns, Building, Construction*, Nueva York: Oxford University Press, 1977.
- Boyne, D.A.C., (ed). *Architects Working Details*, Londres: The Architectural Press, 1962.
- Bonet Correa, Antonio. *Las Claves del Urbanismo*, Barcelona: Editorial Ariel, 1989.
- Chueca Goitia, Fernando. *Breve Historia del Urbanismo*, Madrid: Alianza Editorial, 1987.
- Ching, Francis D. K. *Building Construction Illustrated*, Nueva York: Van Nostrand Reinhold, 1991.
- Eisenman, Peter. *Written Into the Void*. Connecticut, Yale University Press, 2007.
- Koolhaas, Rem and Bruce Mau, *Small, Medium, Large, Extra-Large*. New York: The Monacelli Press, 1995.
- Kostof, Spiro. *The City Assembled: The Elements of Urban History Form Through History*, Boston: Bulfinch Press, 1992.
- Kostof, Spiro. *The City Shaped: Urban Patterns and Meanings Through History*, Boston: Bulfinch Press, 1991.
- Michalko, Michael. *Cracking Creativity: The Secrets of Creative Genius*, Berkeley, CA: Ten Speed Press, 2001.
- Moneo, Rafael. *Theoretical Anxiety and Design Strategies*. The MIT Press, Cambridge Massachusetts, Barcelona: Actar 2004.
- Nesbitt, Kate (ed). *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, New York: Princeton Architectural Press, 1996.
- Rowe, Collin y F. Koetter. *Collage City*, Cambridge: The MIT Press, 1985.
- Sepúlveda Rivera, Aníbal. San Juan: Historia ilustrada de su desarrollo urbano, 1508-1898, San Juan: Centro de Investigaciones CARIMAR, 1989
- Tafuri, Manfredo. *The Sphere and the Labyrinth*. Cambridge, Massachusetts: The MIT Press, 1990.
- Vidler, Antony. *The Writing of the Walls*. New Jersey: Princeton Architectural Press, 1987.

**Offered:** Fall & Spring; Annually

**Faculty Assigned:** Manuel Bermudez



**Number & Title of Course:** ARQU 6311, 6312 & 6315: Building Studio (5 credits)

**Course Descriptions:** The course integrates issues of sustainability, technology and structures with a design process that leads to a medium-scale building proposal. Students will first engage an initial research phase that entails assessment, critical inquiry and strategic analysis of: historical data; general, regional, area and special zoning regulations; applicable codes of agencies that have a say in the area of intervention; and international, national and local building codes. During the second phase, the students will develop an individual design project that integrates the results of the previous investigation to their process. Final presentations consist of detailed design development documentation that illustrates the inner workings of responsible contemporary building design.

**Course Goals & Objectives:**

The Student will:

- **Complete** a group research phase that will guide the design process throughout the semester that includes the development of: research skills, awareness of cultural diversity, definition of pre-design criteria, identification of site-design issues, an understanding of the client's needs and the ability to work in collaboration with others.
- **Develop** an individual building project that reveals efficient use of precedents, informed design thinking and applied research, and addresses essential concerns related to: accessibility, life safety, sustainability, as well as, building environmental, service, and structural systems.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
A05: Investigative Skills	Ability
A06: Fundamental Design Skills	Ability
A07: Use of Precedents	Ability
A08: Ordering Systems Skills	Understanding
A09: Historic Traditions & Global Culture	Understanding
A11: Applied Research	Understanding
B01: Pre-Design	Ability
B02: Accessibility	Ability
B03: Sustainability	Ability
B04: Site Design	Ability
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B07: Financial Considerations	Understanding
B08: Environmental Systems	Understanding
B09: Structural Systems	Understanding
B10: Building Envelope Systems	Understanding
B11: Building Service Systems	Understanding
B12: Building Materials & Assemblies	Understanding
C01: Collaboration	Ability
C02: Human Behavior	Understanding
C03: Client Role in Architecture	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding



## Topical Outline

TOPIC	WEEKS
▪ Initial Research	03
▪ Building Design	11
○ Schematic design	
○ Incorporation of research material	
○ Preliminary design	
○ Integration of building systems	
▪ Final Presentation	02

**Prerequisites:** Admission to the Master of Architecture

### Textbooks/ Learning Resources:

Alexander, Christopher. *A Pattern Language: Towns, Building, Construction*, Nueva York: Oxford University Press, 1977.

Boyne, D.A.C., (ed). *Architects Working Details*, Londres: The Architectural Press, 1962.

Ching, Francis D. K. *Building Construction Illustrated*, Nueva York: Van Nostrand Reinhold, 1991.

Eisenman, Peter. *Written Into the Void*. Connecticut, Yale University Press, 2007.

Koolhaas, Rem and Bruce Mau, *Small, Medium, Large, Extra-Large*. New York: The Monacelli Press, 1995.

Michalko, Michael. *Cracking Creativity: The Secrets of Creative Genius*, Berkeley, CA: Ten Speed Press, 2001.

Moneo, Rafael. *Theoretical Anxiety and Design Strategies*. The MIT Press, Cambridge Massachusetts, Barcelona: Actar 2004.

**Offered:** Fall & Spring; Annually

**Faculty Assigned:** José R. Davis & Victor Nieto / Thomas & Lucilla Marvel / Esteban Sennyey & Oscar Marty / Enrique Vivoni & Jorge Ramírez



**Number & Title of Course:** ARQU 6313: Independent Design Thesis - Research (5 credits)

**Course Descriptions:** Each course participant will perform supervised individual work that will demonstrate the student's capacity to identify an architectural issue/design problem that leads to relevant research. The work will demonstrate the capability to formulate a building program that addresses the concerns raised.

**Course Goals & Objectives:**

The Student will:

- **Apply** fundamental research concepts and their application to the field of architecture.
- **Develop** a comprehensive understanding of architectural design as a field of research and practice.
- **Understand** the criteria involved in the development of architectural design judgment.
- **Select** among different research modes and paradigms.
- **Identify** the available bibliographical resources and archives, as well as, other institutional and media depositories that provide for rigorous research documentation.
- **Be Aware** of the ethical and legal principles related to information management processes.
- **Cultivate** essential critical thinking skills needed to perform research.
- **Improve** and apply necessary writing skills prepare clear and concise research proposals.
- **Complete** the development of relevant proposal of applying the research to a design proposal.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A05: Investigative Skills	Ability
A07: Use of Precedents	Ability
A09: Historical Traditions & Global Culture	Understanding
A10: Cultural Diversity	Understanding
A11: Applied Research	Understanding
C02: Human Behavior	Understanding
C06: Leadership	Understanding
C08: Ethics & Professional Responsibilities	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline:**

TOPIC	WEEKS
▪ Research (minimum of two meetings with Thesis Committee)	12
▪ Application to Design Proposal	02
▪ Degree Exam	01

**Prerequisites:** ARQU 6145 / ARQU 6225 / ARQU 6312 / ARQU 6321 / ARQU 6361

**Textbooks/ Learning Resources:**

The bibliography will be project-related. Some generally recommended texts are:

Alexander, Christopher. *A Pattern Language: Towns, Building, Construction*, Oxford University Press, Nueva York, 1977.

Boyer, D.A.C., (ed). *Architects Working Details*, Londres: The Architectural Press, 1962.



- Bonet Correa, Antonio. *Las Claves del Urbanismo*, Barcelona: Editorial Ariel, 1989.
- Chueca Goitia, Fernando. *Breve Historia del Urbanismo*, Madrid: Alianza Editorial, 1987.
- Ching, Francis D. K. *Building Construction Illustrated*, Nueva York: Van Nostrand Reinhold, 1991.
- Kostof, Spiro. *The City Assembled: The Elements of Urban History Form Through History*, Boston: Bulfinch Press, 1992.
- Kostof, Spiro. *The City Shaped: Urban Patterns and Meanings through History*, Boston: Bulfinch Press, 1991.
- Nesbitt, Kate (ed). *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, Nueva York: Princeton Architectural Press, 1996.
- Michalko, Michael. *Cracking Creativity: The Secrets of Creative Genius*, Berkeley, CA: Ten Speed Press, 2001.
- Rowe, Collin & F. Koetter. *Collage City*, The MIT Press.
- Sepúlveda Rivera, Aníbal. *San Juan: Historia ilustrada de su desarrollo urbano, 1508-1898*, San Juan: Centro de Investigaciones CARIMAR, 1989

LINKS:

<http://www.apastyle.org/elecref.html>

The following is excerpted from the 5th edition of the Publication Manual (© 2001). The material provided covers commonly asked questions regarding how to cite electronic media.

<http://www.mla.org/>

Founded in 1883 by teachers and scholars, the Modern Language Association promotes the study and teaching of language and literature.

<http://books.google.com/books?hl=en&lr=&id=72pHgJvNS5gC&oi=fnd&pg=PP7&sig=nLsOX60CgPGSvGJ3txeqFZN70gl&dq=research+methods&prev=http://scholar.google.com/scholar%3Fq%3Dresearch%2Bmethods%26hl%3Den%26lr%3D>

Survey Research Methods by Floyd J Fowler.

<http://www.socialresearchmethods.net/kb/>

The Research Methods Knowledge Base is a comprehensive web-based textbook that addresses all of the topics in a typical introductory undergraduate or graduate course in social research methods.

**Offered:** Fall & Spring; Annually

**Faculty Assigned:** María Campo / Humberto Cavallín / Lilliana Ramos / Mayra Jiménez / Darwin Marrero / Andrés Mignucci / Emilio Martínez / Ernesto Rodríguez / Jorge Lizardi / Esteban Sennyey / Enrique Vivoni / etc.



**Number & Title of Course:** ARQU 6314: Independent Design Thesis - Project (5 credits)

**Course Descriptions:** This is a continuation course in which each participant will perform supervised individual work that will demonstrate the student's capacity to identify an architectural issue/design problem that leads to relevant form making and construction. The work will demonstrate as well the capability to formulate a building design that addresses the concerns raised in the previous research phase (ARQU-6313).

**Course Goals & Objectives:**

The Student will:

- **Understand:** the need to broaden the existing fields of architectural knowledge production.
- **Demonstrate** adequate social awareness in order to responsibly serve the needs of local communities.
- **Study** the complexity involved in the formulation of an architectural intervention within the natural, cultural and social environment.
- **Be Motivated** to embark on an experimental, research-based approach to the architectural design problem.
- **Incorporate** life safety standards, codes and regulations in the design of an architectural project.
- **Research** a topic related to architectural design.
- **Cultivate** critical thinking and creative capacities.
- **Participate** in wider scenarios for the discussion and exchange of ideas.
- **Seek** to question the practice of architecture in order to improve the understanding of the activity itself.
- **Complete** a comprehensive analysis of architectural systems in terms of their symbolic, spatial, structural, technical and urban aspects.
- **Design** a comprehensive design proposal of architectural systems in terms of their symbolic, spatial, structural, technical, urban, material, constructive, and urban aspects.
- **Present** the proposal with efficient verbal, textual, and visual communication of the ideas that comprise the proposed building design.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
A05: Investigative Skills	Ability
A06: Fundamental Design Skills	Ability
A07: Use of Precedents	Ability
A08: Ordering Systems Skills	Understanding
A09: Historic Traditions & Global Culture	Understanding
A10: Cultural Diversity	Understanding
A11: Applied Research	Understanding
B01: Pre-Design	Ability
B02: Accessibility	Ability
B03: Sustainability	Ability
B04: Site Design	Ability
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B07: Financial Considerations	Understanding
B08: Environmental Systems	Understanding
B09: Structural Systems	Understanding
B10: Building Envelope Systems	Understanding
B11: Building Service Systems	Understanding



B12: Building Materials & Assemblies	Understanding
C01: Collaboration	Ability
C02: Human Behavior	Understanding
C03: Client Role in Architecture	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding

#### Topical Outline:

TOPIC	WEEKS
▪ Research and site analysis	02
▪ Schematic Design	03
▪ Design Development	05
▪ Preliminary Presentation	02
▪ Final Presentation	03

**Prerequisites:** ARQU 6313

#### Textbooks/ Learning Resources:

The bibliography will be project-related. Some generally recommended texts are:

- Alexander, Christopher. *A Pattern Language: Towns, Building, Construction*, Oxford University Press, Nueva York, 1977.
- Boyne, D.A.C., (ed). *Architects Working Details*, Londres: The Architectural Press, 1962.
- Bonet Correa, Antonio. *Las Claves del Urbanismo*, Barcelona: Editorial Ariel, 1989.
- Chueca Goitia, Fernando. *Breve Historia del Urbanismo*, Madrid: Alianza Editorial, 1987.
- Ching, Francis D. K. *Building Construction Illustrated*, Nueva York: Van Nostrand Reinhold, 1991.
- Kostof, Spiro. *The City Assembled: The Elements of Urban History Form Through History*, Boston: Bulfinch Press, 1992.
- Kostof, Spiro. *The City Shaped: Urban Patterns and Meanings through History*, Boston: Bulfinch Press, 1991.
- Nesbitt, Kate (ed). *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, Nueva York: Princeton Architectural Press, 1996.
- Michalko, Michael. *Cracking Creativity: The Secrets of Creative Genius*, Berkeley, CA: Ten Speed Press, 2001.
- Rowe, Collin & F. Koetter. *Collage City*, The MIT Press.
- Sepúlveda Rivera, Aníbal. *San Juan: Historia ilustrada de su desarrollo urbano, 1508-1898*, San Juan: Centro de Investigaciones CARIMAR, 1989

#### LINKS:

<http://www.apastyle.org/elecref.html>

The following is excerpted from the 5th edition of the Publication Manual (© 2001). The material provided covers commonly asked questions regarding how to cite electronic media.

<http://www.mla.org/>

Founded in 1883 by teachers and scholars, the Modern Language Association promotes the study and teaching of language and literature.

<http://books.google.com/books?hl=en&lr=&id=72pHgjnNS5gC&oi=fnd&pg=PP7&sig=nLsOX60CgPGSvGJ3txeqFZN70gl&dq=research+methods&prev=http://scholar.google.com/scholar%3Fq%3Dresearch%2Bmethods%26hl%3Den%26lr%3D>

Survey Research Methods by Floyd J Fowler.



<http://www.socialresearchmethods.net/kb/>

The Research Methods Knowledge Base is a comprehensive web-based textbook that addresses all of the topics in a typical introductory undergraduate or graduate course in social research methods.

**Offered:** Fall & Spring; annually

**Faculty Assigned:** María Campo / Humberto Cavallín / Mayra Jiménez / Darwin Marrero / Andrés Mignucci / Emilio Martínez / Ernesto Rodríguez / Esteban Sennyey / Enrique Vivoni / etc.





**Number & Title of Course:** ARQU 6316: Capstone Project (5 credits)

**Course Descriptions:** this independent study course requires each participant to select a research topic related to one of the design themes of the semester's concurrent Building Studio courses. Students can also select a research topic related to the field of study of any of the school's research centers. Participants will then develop a proposal that outlines the scope and extent of the work to be performed during the semester according to the expected level of complexity of an end-of-degree Capstone Project. Preliminary and Final Presentation requirements for the course are stipulated by the Graduate Program coordination and follow the thesis guidelines for master degree projects of the UPR Rio Piedras Campus as approved by the Dean of Graduate Studies & Research (D.E.G.I. in Spanish).

**Course Goals & Objectives:**

The student will:

- **Understand** the need to broaden the existing fields of architectural knowledge production.
- **Demonstrate** adequate social awareness in order to responsibly serve the needs of local communities.
- **Study** the complexity involved in the formulation of an architectural intervention within the natural, cultural and social environment.
- **Be Motivated** to embark on an experimental, research-based approach to the architectural design problem.
- **Incorporate** life safety standards, codes and regulations in the design of an architectural project.
- **Research** a topic related to architectural design.
- **Cultivate** critical thinking and creative capacities.
- **Participate** in wider scenarios for the discussion and exchange of ideas.
- **Seek** to question the practice of architecture in order to improve the understanding of the activity itself.
- **Complete** a comprehensive analysis of architectural systems in terms of their symbolic, spatial, structural, technical and urban aspects.
- **Design** a comprehensive design proposal of architectural systems in terms of their symbolic, spatial, structural, technical, urban, material, constructive, and urban aspects.
- **Present** the proposal with efficient verbal, textual, and visual communication of the ideas that comprise the proposed building design.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
A05: Investigative Skills	Ability
A06: Fundamental Design Skills	Ability
A07: Use of Precedents	Ability
A08: Ordering Systems Skills	Understanding
A09: Historic Traditions & Global Culture	Understanding
A10: Cultural Diversity	Understanding
A11: Applied Research	Understanding
B01: Pre-Design	Ability
B02: Accessibility	Ability
B03: Sustainability	Ability
B04: Site Design	Ability
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B07: Financial Considerations	Understanding
B08: Environmental Systems	Understanding
B09: Structural Systems	Understanding
B10: Building Envelope Systems	Understanding
B11: Building Service Systems	Understanding
B12: Building Materials & Assemblies	Understanding
C01: Collaboration	Ability
C02: Human Behavior	Understanding



C03: Client Role in Architecture	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline:**

TOPIC	WEEKS
▪ Research and site analysis	02
▪ Schematic Design	03
▪ Design Development	05
▪ Preliminary Presentation	02
▪ Final Presentation	03

**Prerequisites:** ARQU 6311 / ARQU 6312 / ARQU 6315

**Textbooks/ Learning Resources:**

- Borden Iain and Katerina Rüedi. *The Dissertation - an architecture student's handbook*. Great Britain: Architectural Press, 2000.
- Groat, Linda and David Wang. *Architectural Research Methods*. New York: John Wiley & Sons, 2002.
- Jencks, Charles and Karl Kropf. *Theories and Manifestoes of Contemporary Architecture*. First Edition, Great Britain: Academy Editions, 2001.
- Jencks, Charles and Karl Kropf. *Theories and Manifestoes of Contemporary Architecture*. Second Edition, Great Britain: Wiley - Academy, 2006.
- Leach, Neil. *Rethinking Architecture - a reader in cultural theory*. New York: Routledge, 2004.
- Michael Hays, K. *Architecture Theory since 1968*. Columbia Books of Architecture, New York: The MIT Press, 2000.
- Nesbitt, Kate. *Theorizing a New Agenda for Architecture - an anthology of architectural theory, 1965-1995*. New York: Princeton Architectural Press, 1996.
- Ockman, Joan. *Architecture Culture 1943-1968*. Columbia Books of Architecture, New York: Rizzoli, 1993.
- Snyder, James C. *Architectural Research*. New York: Van Nostrand Reinhold, 1984.
- Walker, Melissa. *Como Escribir Trabajos de Investigacion*. Barcelona: Editorial Gedisa, 2007.
- Wehrli, Robert. *Environmental design research : how to do it and how to apply it*. New York : John Wiley & Sons, 1986.
- Zeisel, John. *Inquiry by Design*. Revised Edition, New York, W.W. Norton & Co., Inc. 2006.

**Offered:** Fall & Spring; Annually

**Faculty Assigned:** José Davis & Victor Nieto / Enrique Vivoni & Jorge Ramírez / Manuel Bermúdez



**Number & Title of Course:** ARQU 6361: Buildings Systems (3 credits)

**Course Descriptions:** The topics covered in this specialized technology course include mechanical systems, environmental controls, life safety codes, and means of egress and circulation. The topics are presented in a comprehensive and integrated manner in relation to the spatial and structural design of a building system. Each topic will also be illustrated with traditional and contemporary examples and addressed in terms of local and regional context.

**Course Goals & Objectives:**

The students will:

- **Explore** the methods, strategies, and mechanical environmental control systems and how to incorporate them in the schematic design phase.
- **Select** the strategies of the diverse alternatives of applied systems with emphasis on the economic and energetic impact.
- **Accrue** the necessary knowledge to discuss with consultants, of each professional practice discipline, to select the appropriate options for each pertinent building issue.
- **Understand** the basic considerations to design basic fire protection systems.
- **Develop** the capacity to apply relevant issues to the process of designing drinking, sewer, and rainwater management systems.
- **Explore** the principles and methods of circulation, vertical and horizontal transport as per the spatial requirements of the presented design program.
- **Be Familiarized** with codes and standard information resources guide the practice of architecture and these technologies.
- **Establish** a rational methodology for decision making as to the different technological components and systems that impact architectural design.

**Student Performance Criterion/a addressed:**

A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
B01: Pre-Design	Ability
B02: Accessibility	Understanding
B03: Sustainability	Understanding
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B08: Environmental Systems	Understanding
B11: Building Service Systems	Understanding
C01: Collaboration	Ability
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Responsibilities	Understanding

**Topical Outline**

TOPIC	WEEKS
▪ Plumbing systems	04
▪ Fire control and suppression systems	04
▪ Mechanical ventilation and air conditioning systems	04
▪ Conveying systems	04



**Prerequisites:** Admission to the Master of Architecture

**Textbooks/ Learning Resources:**

- Stein, B., Reynolds, J.S., Gondzik, W.T. and Kwok, A.G. 2010. *Mechanical and Electrical Equipment for Buildings*. 11th Edition, John Wiley & Sons, New York, NY.
- Ching, Francis D. K. and Winkel, Steven R, 2009 "Building Codes Illustrated – A guide to Understanding the 2009 International Building Code" 3rd Edition, John Wiley & Sons. New York, NY.
- Allen, E. and Iano, J., 2007. *The Architect's Studio Companion*. 4th Edition, John Wiley & Sons. New York, NY.
- ASHRAE. *Handbook-HVAC Systems and Equipment*. American Society of Heating, Refrigerating and Air conditioning Engineers, Inc., Atlanta, GA.
- AIA. Ramsey/Sleeper. 2000. *Architectural Graphic Standards*. 10th Edition, John Wiley & Sons. New York, NY.

**Offered:** Fall only; Annually

**Faculty Assigned:** Juan Penabad



**Number & Title of Course:** ARQU 6383: Professional Practice: Design Firm (3 credits)

**Course Descriptions:** The course analyzes the social, economic, ethical, and legal contexts within which the professional practice of architecture must insert itself. Basic organizational and financial management concepts are discussed in relation to the needs, range of services, and responsibilities of an architecture design firm. The course also covers issues pertaining to the different stages in the development of an architectural project, including the establishment of a designer-client relationship, the production of technical documentation, and the implications of building construction supervision.

**Course Goals & Objectives:**

The Student will:

- **Understand:** the definition of the professional practice of architecture in the local social, economic and legal context.
- **Learn** the basic economic concepts that affect and determine the extent of services during the professional practice of architecture.
- **Be familiarized** with the basic business organizational concepts in relation to the establishment of a professional design firm, including planning, marketing and administration aspects.
- **Review** the economic and legal implications of basic functional and organizational concepts in relation to the establishment of a professional design firm, including the selection of personnel, equipment and physical space.
- **Comprehend** the basic professional concepts in relation to the services offered by an architecture design firm, including the scope of services and responsibilities for each stage of the design and construction process.
- **Develop** the skills needed to prepare basic professional service proposals for architectural design.
- **Practice** the skills needed to evaluate legal documentation related to professional service proposals for architectural design.
- **Know** the economic, financial, legal, and ethical framework of the criteria needed for the professional practice of architecture.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A10: Cultural Diversity	Understanding
B07: Financial Considerations	Understanding
C02: Human Behavior	Understanding
C03: Client Role in Architecture	Understanding
C04: Project Management	Understanding
C05: Practice Management	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline**

TOPIC	WEEKS
<ul style="list-style-type: none"> <li>▪ The economic context of professional practice               <ul style="list-style-type: none"> <li>○ Definition and range of actions</li> <li>○ Interaction with basic economic principles</li> <li>○ Relationships with the construction industry</li> </ul> </li> </ul>	05
<ul style="list-style-type: none"> <li>▪ The professional architectural design firm</li> </ul>	05



- o Legal organization
- o Functional organization
- The building construction process 05
  - o Marketing and public relationships
  - o Service proposals
  - o Legal implications and responsibilities during design and construction phases
  - o Compliance with local regulatory institutional stakeholders

**Prerequisites:** Admission to the Master of Architecture.

**Textbooks/ Learning Resources:**

Ley Núm. 96 [1978], Ley Núm. 173 [1988], Ley Núm. 185 [1997] Ley Núm. 138 [2000], Ley Núm. 333 [2003];  
Gobierno de Puerto Rico  
Resoluciones Interpretativas de la Junta de Examinadora de Arquitectos de Puerto Rico  
*Architects Registration Examination [ARE], Internship Development Program [IDP]; National Council of Architectural  
Registration Boards*  
Manual de la Práctica Profesional para Servicios de Arquitectura, Colegio de Arquitectos de Puerto Rico  
Código de Ética Profesional; Colegio de Arquitectos de Puerto Rico, Junta de Examinadora de Arquitectos  
Manual de Práctica Profesional y Guías de Compensación para Servicios Profesionales, Colegio de Ingenieros y  
Agrimensores de Puerto Rico.  
Ley Núm. 135 [1967], Ley de Certificaciones de Proyectos, Gobierno de Puerto Rico

**LINKS:**

- Leyes de Puerto Rico: <http://www.estado.gobierno.pr>
- Colegio de Arquitectos de Puerto Rico: [www.caappr.org](http://www.caappr.org)
- Junta Examinadora de Arquitectos: [http://www.estado.gobierno.pr/arquitectos\\_y\\_arquitectos\\_paisajistas.htm](http://www.estado.gobierno.pr/arquitectos_y_arquitectos_paisajistas.htm)
- *National Council of Architectural Registration Boards*: [www.ncarb.org](http://www.ncarb.org)
- Junta de Planificación: <http://www.jp.gobierno.pr>

**Offered:** Fall only; Annually

**Faculty assigned:** José Caro / Luis Pico



**Number & Title of Course:** ARQU 6384: Professional Practice: Design Project (3 credits)

**Course Descriptions:** This continuation course further analyzes the social, economic, ethical and legal contexts within which the professional practice of architecture must insert itself. Emphasis is placed on administrative, procedural and regulatory processes related to the documentation that the architectural design firm must produce and certify as part of its professional services.

**Course Goals & Objectives:**

The professor acts as a Special Society's representative dedicated to develop properties.

The Student will:

- **Establish** a professional office – Society – made up of 2 to 3 students each.
- **Prepare** an architecture-related professional services proposal.
- **Write** and sign an architecture-related professional services contract.
- **Complete** the documents specified in the contract of corresponding phases of a design project: schematic, preliminary and construction documents.

In addition, the student will:

- **Understand** the administrative processes and applicable regulations of professional services rendered by an architecture firm.
- **Learn** the basic legal considerations in relation to the professional services rendered by an architecture firm.
- **Develop:** basic knowledge about local administrative procedures related to the professional services rendered by an architecture firm.
- **Know** the scope of the certification process of construction documents including consultants, approvals and permits.
- **Accrue** general knowledge of the basic characteristics of a professional services contract.

**Student Performance Criterion/a addressed:**

A01: Communication Skills	Ability
A02: Design Thinking Skills	Ability
A03: Visual Communication Skills	Ability
A04: Technical Documentation	Ability
A05: Investigative Skills	Ability
A06: Fundamental Design Skills	Ability
A07: Use of Precedents	Ability
A08: Ordering Systems Skills	Understanding
A11: Applied Research	Understanding
B01: Pre-Design	Ability
B02: Accessibility	Ability
B03: Sustainability	Ability
B04: Site Design	Ability
B05: Life Safety	Ability
B06: Comprehensive Design	Ability
B07: Financial Considerations	Understanding
B08: Environmental Systems	Understanding
B09: Structural Systems	Understanding
B10: Building Envelope Systems	Understanding
B11: Building Service Systems	Understanding



B12: Building Materials & Assemblies	Understanding
C01: Collaboration	Ability
C02: Human Behavior	Understanding
C03: Client Role in Architecture	Understanding
C04: Project Management	Understanding
C06: Leadership	Understanding
C07: Legal Responsibilities	Understanding
C08: Ethics & Professional Judgment	Understanding
C09: Community & Social Responsibility	Understanding

**Topical Outline:**

TOPIC	WEEKS
▪ Simulated establishment of professional architectural firms	12
o Request for proposals	
o Contract for professional services	
o Preparation of documentation for schematic, preliminary and construction phases	
▪ Simulated process of certification of construction documents	03
o Preliminary consultations	
o Construction permits	

**Prerequisites:** ARQU 6383 Professional Practice: Design Firm

**Textbooks/ Learning Resources:**

Manual de la Práctica Profesional para Servicios de Arquitectura, Colegio de Arquitectos de Puerto Rico  
Código de Ética Profesional; Colegio de Arquitectos de Puerto Rico, Junta de Examinadora de Arquitectos  
Manual de Práctica Profesional y Guías de Compensación para Servicios Profesionales, Colegio de Ingenieros y Agrimensores de Puerto Rico.

Ley Núm. 135 [1967], Ley de Certificaciones de Proyectos, Gobierno de Puerto Rico

Reglamento para la Certificación de Obras y Permisos (Reglamento de Planificación Núm. 12), Administración de Reglamentos y Permisos [ARPE]

Reglamento de Zonificación, (Reglamento de Planificación Núm. 4) Junta de Planificación

"Uniform Building Code", Volúmenes I, II y III

"Americans with Disabilities Act" [ADA], U.S. Department of Justice

"Life Safety Code", National Fire Protection Association

**LINKS:**

Leyes de Puerto Rico: <http://www.estado.gobierno.pr>

Colegio de Arquitectos de Puerto Rico: [www.caappr.org](http://www.caappr.org)

Junta de Planificación: <http://www.jp.gobierno.pr>

Oficina de Gerencia y Permisos: <http://www.sip.pr.gov>

**Offered:** Fall only; Annually

**Faculty assigned:** José Caro / Luis Pico