

LONG SIGNATURE SHEET



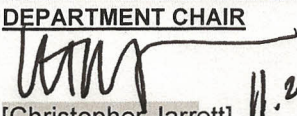
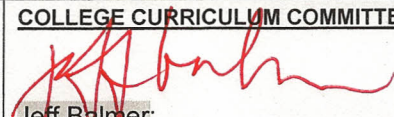
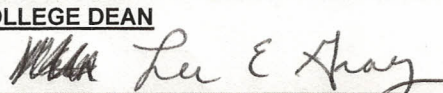
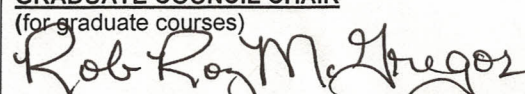
UNC CHARLOTTE

Proposal Number: SoA 11-07-2012

Proposal Title Dual Degree in Master of Computer Science/Information Technology and Master of Architecture

Originating Department School of Architecture

TYPE OF PROPOSAL: UNDERGRADUATE _____ GRADUATE X UNDERGRADUATE & GRADUATE _____
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
			Approved	<u>DEPARTMENT CHAIR</u>  [Christopher Jarrett] 11.27.12
			Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u>  Jeff Balmer:
			Approved	<u>COLLEGE FACULTY CHAIR</u> Print name:
			Approved	<u>COLLEGE DEAN</u>  Print name here if signing on behalf of Dean: Lee E. Gray
			Approved	<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses)
12-13-12	1-15-13	2-18-13	Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses) 
			Approved	<u>FACULTY GOVERNANCE SECRETARY</u> (noting Faculty Council approval on Consent Calendar)
				<u>FACULTY EXECUTIVE COMMITTEE</u> (if decision is appealed)

I. HEADING AND PROPOSAL NUMBER

University of North Carolina at Charlotte

Revised Graduate: Dual degree curriculum Master of Architecture and Master of Science in Computer Science/ Master of Science in Information Technology

Course and Curriculum Proposal from the School of Architecture, the Department of Computer Science and the Department of Software and Information Systems

“Curriculum and Course Proposals for Dual Degree in Master of Computer Science/Information Technology and Master of Architecture”

II. CONTENT OF PROPOSALS

A. PROPOSAL SUMMARY AND CATALOG COPY.

1. SUMMARY. The School of Architecture and the Departments of Computer Science and Software and Information Systems propose to create a dual degree program awarding a Master of Architecture and a Master of Computer Science or Master of Information Technology. We also propose new courses to make this curriculum possible.

2. PROPOSED CATALOG COPY.

School of Architecture; new catalog copy

Dual Degree: Master of Architecture and Master of Science in Computer Science or Information Technology

The premise of the dual degree program in Architecture and Computer Science/ Software and Information System is that design has become increasingly important to computer scientists and at the same time computation has become important to designers. This program is a unique curriculum that systematically combines the strength and insights of these disciplines.

As computing has matured as a discipline, it has expanded its focus to include the physical and virtual settings in which users interact with the machine. Specialties like human computer interaction, ubiquitous computing, gaming and visualization require an understanding not only of the logic of the machine, but also the logic of the user. Based on these concerns, the design thinking ability that is an integral part of design training is of interest as an alternative paradigm that may change the way that students think and operate.

Within architecture, there is a unique opportunity to develop students who will have the knowledge to lead the integration of the computer into architectural practice and research. As firms rely more and more on computation, those who know how to think, program and script will be able to change the way architects design and practice. We see the day fast approaching when the IT department at firms is not separate but rather is at the core of what architects do. Already, in advanced practices across the world, computing and design are intermingling.

The curriculum integrates computer science/ SIS students and architecture students working collaboratively on tasks that challenge both fields. Early in the curriculum, the cohorts with architecture background and those with computing background will be taking courses to provide basic competency in a new discipline.

Students in this dual degree program will enroll simultaneously in the Master of Architecture program and *either* the Computer Science degree (courses labeled ITCS) or the Information Technology degree (courses labeled ITIS).

Curriculum

Summer

- ARCH 7210 Idea Seminar (3)

Fall Year One

- ARCH 5611 Research Methods I: Computational (3)
- ARCH 5607 Digital Fabrication (3)
- ITCS 6112 *or* ITIS Core (3)
- *ITCS Design *or* ‡ARCH 6110 *or* *ITIS Design (3)
[Course required for entering students with undergraduate computing degrees are preceded by (‡); course required for entering students with architecture background are preceded by (*).]

Spring Year One

- ARCH 7211/ ITCS7212/ITIS7212 Studio Lab One (4)
- ARCH 5606 Scripting (3)
- ITCS 6114 *or* ITIS Core (3)
- ITCS Breadth *or* ITIS Core (3)

Fall Year Two

- ARCH 7212/ ITCS7212/ITISS7212 Studio Lab Two (4)
- ARCH 5612 Research Methods II (3)
- ITCS Breadth *or* ITIS Core (3)

Spring Year Two

- ARCH 7213/ITCS6991/ITISS6991 Thesis (6)
- ITCS Elective *or* ITIS Elective (3)

Total Dual Degree (47)

The centerpiece of the curriculum is a three-semester sequence of studio/lab courses taught jointly by CCI and Architecture faculty that are focused on issues and problems that are researched by design teams.

Admission

Students would be admitted to this program upon recommendation of a joint admissions committee of faculty from Architecture, Computer Science and SIS. Admitted students would be expected to complete all coursework outlined above to receive both degrees. Upon successful completion of all requirements, students would receive the Master of Architecture III degree and the Master of Computer Science or Master of Information Technology degree.

All students admitted to the Master of Architecture III program must be enrolled in the Dual Masters program

Note: Other programs within the School of Architecture are accredited through the National

Architectural Accrediting Board, but the Master of Architecture III degree program, because of its research focus, is not an accredited program that can lead to licensure as a registered architect.

Admission to the dual degree program requires either:

- a degree in architecture or a related design discipline or
- an undergraduate degree in computer science, information technology or a related discipline

Students without an undergraduate degree in a computing-related discipline must meet the following additional admission requirements:

Architecture and Computer Science option:

Students are expected to have knowledge of two higher programming languages, data structures, operating systems or computer architecture, and an additional upper-level computing course. Also, knowledge of calculus, discrete mathematics, and linear algebra is strongly recommended. Work experience at a professional level in the computer industry or satisfactory completion the Advanced GRE in Computer Science may be substituted for some or all of the subject area admission requirements, subject to review by the joint admissions committee.

Architecture and Information Technology option:

Students admitted to the It option must have one of the following:

1. A summer programming course (boot camp) offered by CCI
2. An introductory programming course as part of a Bachelor's degree
3. A certificate in a programming course offered online that is approved by the admission committee for the dual degree program.

Department of Software and Information Systems; additions and new copy.

Concentration Requirements

Each student must also complete an approved concentration area – nine (9) credit hours. Details on concentration requirements are available on the department website and at the department office. Current concentration areas include:

1. Advanced Data and Knowledge Discovery
2. Human-Computer Interaction
3. Information Security and Privacy
4. Information Technology Management
5. Software Systems Design and Engineering
6. Design
7. Thesis Option

Other concentration areas are possible with the approval of the MSIT Program Coordinator. In addition, the MSIT Program Coordinator can approve substitution of courses within approved concentration areas. Students satisfy remaining program requirements by completing approved IT elective coursework.

Dual Degree: Master of Architecture and Master of Science in Information Technology

The premise of the dual degree program in Architecture and Software and Information System is that design has become increasingly important to information technologists and at the same time information technology and computing has become important to designers. This program is a unique curriculum that systematically combines the strength and insights of these disciplines.

This dual degree program requires that students complete 75% of the degree requirements of the Master of Architecture program and 75% of the degree requirements of the MSIT. For the MSIT, this means that students must complete 23 credit hours by taking:

- at least 4 core SIS courses

- at least 8 credit hours of the design concentration
- one additional elective or core course in SIS or CS

The complete Dual Degree: Master of Architecture and Master of Science in Information Technology program description can be found in the Architecture catalog and on the SIS Department web site.

On the SIS web site:

Design concentration:

Students must take at least 9 credit hours from the following list.

- ITIS 5180 (Mobile Application Development)
- ITIS 6400 (Principles of Human Computer Interaction)
- ITIS 6500 (Complex Adaptive Systems)
- ITIS 6880 (Design-focused Independent Study)
- ITCS 5123 (Visualization and Visual Communication)
- ITCS 5230 (Introduction to Game Design and Development)
- ARCH 7201/ ITCS7201/ITIS7201 Studio Lab I
- ARCH 7202/ ITCS7202/ITISS7202 Studio Lab II

Department of Computer Science: new catalog copy.

Dual Degree: Master of Architecture and Master of Science in Computer Science

The goal of the dual degree program in Architecture and Computer Science is to develop students with the knowledge to lead the integration of computing into architectural practice and research. It is an integrated program where students with backgrounds in either computing or architecture work collaboratively on challenging, interdisciplinary, real-world problems. The centerpiece of the curriculum is a three-semester sequence of studio courses taught jointly by Computing and Architecture faculty, centered on team-based design problems.

The complete Dual Degree: Master of Architecture and Master of Science in Computer Science program description can be found in the Architecture catalog and on the Computer Science Department web site.

As part of this dual degree program, the Master of Science program in Computer Science requires 23 graduate credit hours with minimum 3.0 GPA.

1. Core Requirements

All students must take the following two courses from the Core Category:

- ITCS 6112 Software System Design and Implementation
- ITCS 6114 Algorithms & Data Structures

The courses taken to satisfy the core requirement must each be passed with an "A" or a "B" grade.

2. Breadth Requirements

All students must take three courses to satisfy the breadth requirement. One course must be from the Design Course Category. The other two must each be from a different Course Category in the MSCS program.

Design

ITIS 6400 HCI Interaction Design

3. Area of Concentration

Each student must take ITCS 7201 Studio Lab I and ITCS 7202 Studio Lab II (8 hours total) to form an area of concentration. The courses taken to satisfy the concentration requirement must each be passed with an "A" grade or a "B" grade. In addition to the eight hours of course work, a written study report on a subject in the area must be submitted to and be approved by the academic advisor to complete the concentration requirement.

B. JUSTIFICATION.

The premise of the dual degree program in Architecture and Computer Science/SIS is that design has become increasingly important to computing and at the same time computation has become important to designers. This program is a unique curriculum that systematically combines the strength and insights of these disciplines.

The importance of design for computing has included connections to knowledge domains that emphasize design issues such as gaming, visualization and HCI. Computing, in these cases, needs to understand and embrace the provocative nature of these disciplines, particularly if its goal is to create new and innovative software. As Alan Kay famously said, "The best way to predict the future is to invent it."

At a more theoretical level, the structure of software has always been called "architecture" precisely to describe the need to consider the pattern of order in a way that is not merely procedural. One example of this is the field of aesthetic computing, which explores the way art and aesthetics can play a role in computer science by the application of the wide range of definitions and categories normally associated with making art. This goes beyond the usual definition of aesthetics pointing to a beautiful proof, or an elegant diagram. Aesthetic computing proposes that the field of computing will be enriched if it embraces all of aesthetics, from abstract qualities of symmetry and form to ideas of creative expression and pleasure.

Within visualization, progress is underway toward a more cultural, individual and customized set of aesthetics. The benefits include an emphasis on creativity and innovative exploration, a personalized computing structures, an enlargement of the audience who can use & understand computing, and cognitive improvements in mnemonics, comprehension and motivation. Computing can think of software, and its underlying mathematical structures, as subject material for designer.

Within architecture, there is a unique opportunity to develop the knowledge to lead the integration of the computer into architectural practice and research. As firms rely more and more on computation, those who know how to think, program and script will be able to change the way architects design and practice. The day is fast approaching when the IT department at firms is not separate but rather is at the core of what architects do. Already, in many advanced firms, computing and design intermingle almost seamlessly.

From October of 2010 to January of 2011, forty-four large regional and national architecture firms were polled for their reception of the proposed program; twenty-three responses were received. The responses were overwhelmingly positive regarding the dual degree program in Computer Science and Architecture.

- Of the 23 respondents, over 90% [91.3%] agreed that research will become an increasingly important aspect of professional architectural practice. More than 1/3 of the respondents [34.78%] strongly agreed.
- Almost three-quarters [73.91%] of the respondents agreed that a candidate with a research focused, post-professional architecture degree would likely be considered for employment at my firm. More than one-fifth [21.74%] of the respondents strongly agreed.
- Over 90% [91.3%] of the respondents agreed that the role of the computer and of computing is likely to become more important to a successful practice. More than half [52.17%] of the respondents strongly agreed with this statement.
- Over 80% [82.61%] of respondents agreed that employees with the ability to understand both architectural design and computer science at a high level will be valuable to the profession. Almost half [47.83%] of the respondents strongly agreed with this statement.

One respondent stated: *"To me this program will better prepare students for the ever changing, dynamic field of design and architecture. It will create an opportunity for students to develop and research new and appropriate design methodologies that in my opinion are greatly needed. Furthermore, this program will enable students to address the growing demand from clients that we measure the impact of remarkable design"*

beyond esthetics. I appreciate that UNCC is thinking about the future and preparing students to make that measurable impact.”

We also conducted a survey of existing Master of Architecture programs that refer to digital or computational methods, but none of the programs have a structured introduction to computer science methods as a part of the curriculum. Our proposed program will be unique, innovative and transformative.

C. IMPACT.

1. The dual degree program is primarily designed to serve the needs of two groups:
 - a. advanced architectural students who already hold accredited degrees but wish to engage in advanced research in computational methods
 - b. Master of Computer Science/Information Technology students who are interested in applied computer science within the field of design.
2. This proposal will have little effect on the other course and curricula; the only marginal change will be a slight increase in elective courses open to other students.
 - a. Each of the courses in this proposal will be taught once per year.
 - b. This proposal will increase slightly the number of courses offered to graduate students in all tracks of the program.
 - c. We anticipate that the enrollment in the dual degree program will be 8-10 student per year, evenly split between those with architecture background and those with computer science backgrounds.
 - d. We do not anticipate that will affect enrollment in other course because we will be serving mostly new students.
 - f. See item 2 above for changes to catalog copy.

C. RESOURCES REQUIRED TO SUPPORT PROPOSAL.

1. Personnel

- a. Because of the small number of students, sufficient room exists in most currently offered courses exists. The only new courses are:

ARCH 5612 Research Methods II will be new course that will also be offered to graduate students with the School of Architecture.

ARCH 5606 Scripting will be a new course that will also be offered to graduate students in Computer Science, Information Technology and Architecture.

Studio Lab I & II and Thesis Studio Lab will be small sections, and can be taught by faculty in lieu of a seminar assignment. This may require hiring of faculty, either full or part time, to teach additional electives.

- b. Qualified faculty members interested in teaching the course(s).

Dr. Celine Latulipe
 Dr Heather Lipford
 Nick Senske
 Chris Beorkrem
 Eric Sauda
 Dr. Charles Davis
 Dr. Richard Souvenir

2. Physical Facility

No new space will be required for this proposal

3. Equipment and Supplies

No new equipment is need for this proposal.

4. Computer

No new computing resources are needed for this proposal.

5. Audio-Visual

None

6. Other Resources

None

7. Indicate source(s) of funding for new/additional resources required to support this proposal.

E. CONSULTATION WITH THE LIBRARY AND OTHER DEPARTMENTS OR UNITS

1. Library Consultation

Indicate written consultation with the Library Reference Staff at the Departmental level to insure that library holdings are adequate to support the proposal prior to its leaving the department. (Attach copy of Consultation on Library Holdings).

2. Consultation with other departments or units

None

F. INITIATION AND CONSIDERATION OF THE PROPOSAL

1. Originating Units

- Approved by the Curriculum Committee of the School of Architecture on 10/24/2012.
- Approved by the Faculty of the School of Architecture on 11/7/2012.
- Approved by the Curriculum Committee of the Department of Computer Science on 11/8/2012
- Approved by the Faculty of the Department of Computer Science on 11/13/2012
- Approved by the Curriculum Committee of the Department of Software and Information Systems on 10/31/2012
- Approved by the Faculty of the Department of Software and Information Systems on 11/8/2012

2. Other Considering Units

None

G. ATTACHMENTS

1. Course Syllabi

Course Number and Title

ARCH 5606 Scripting (3 credit hours)

Course Description

At the forefront of architectural design, scripting (high-level programming) is an essential skill that supports advanced research and formal experimentation. In this course, students will learn to use the scripting languages JavaScript and Python in an architectural context: automating tasks, creating custom design tools, and sending data between applications, sensors, and other machines.

Pre- or Co-requisites

ARCH 5611 or approval of instructor

Objectives

The goal of this course is to master some basic scripting languages and to teach students how to apply scripting as one might within a professional design setting.

Instructional Method

This course is primarily lab-based with regular lecture presentations and the occasional design review. In the first part of the course, weekly problem sets will help students build essential skills. Later in the semester, students will develop an independent project that integrates with their “studiolab” design projects.

Means of student evaluation

Students will be evaluated on their performance in both in-class and out-of-class exercises. The following rubric will be used to assess student performance:

Class Participation	10%
Problem sets	30%
Group project midway review	20%
<u>Group project final review</u>	<u>40%</u>
Total	100%

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course

Textbooks or resources

There is no textbook for the course. Materials will be provided as online resources, including videos, scripts, and short readings.

Topical outline of course content

Overview and applications of scripting languages; scripting language constructs; plug-ins/extending design software; studying and understanding discipline-specific procedures and problems; data translation and integration; planning and developing scripts; testing, debugging, and supporting scripts within a production environment

Course Number and Title

ARCH 5607 Digital Fabrication (3 credit hours)

Course Description

Performance- based feedback into the early stages of design development.⁴ This is often a response to the tendencies of a construction industry that values efficiency – resulting in excessive waste— over environmental steadfastness. However, a systematic design process, applied specifically to material constraints could frame awareness of the interconnectivity between the mediums of ecology, parametric modeling, and CNC fabrication.

Pre- or Co-requisites

None

Objectives

This course will employ ideas from industrial, mechanical, and technical construction techniques to formulate designs for spaces and programs within a digital environment. We will explore the changes, which our profession is going through as we adjust to drawings, which no longer only represent, they make. Using parametric design techniques, spaces and designs will be formed within the computer through techniques of dynamic systems and modifiers. The course will analyze many of the recent projects being constructed around the world on varying scales and discuss the success of the relational programs, constructed spaces, and conceptual ideas.

Instructional Method

The semester will be organized around a final objective of creating a piece of Art/ Architecture particular to the form, movement and interactivity of the human body. Every assignment will be based around working towards that objective. The first set of assignments will walk you through the techniques, tools, and critical choices currently available to designers for prototyping their work.

Means of student evaluation

Assignment 1- *Model of Efficiency*- 25%

Assignment 2- *Fixed Object Surface Modeling*- 25%

Assignment 3- *Studies in Tension/ Studies in Compression*- 50%

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Probable textbooks or resources

Material Strategies in Digital Fabrication

Outline of course content

Assignment 1- *Model of Efficiency*- Zero Waste modeling methods

Assignment 2- *Fixed Object Surface Modeling*- Design and construct an assembly of off the shelf objects

Assignment 3- *Studies in Tension/ Studies in Compression*- Design an object that puts a single piece of steel into bending compression and a single piece of plywood into tension- Use this object as a unit in a compressive vault structure as a class

Course Number and Title

ARCH 5611 Research Methods I: Computational Methods in Architectural Design (3 credit hours)

Course Description

This course introduces students to the fundamental concepts of design computation through explorations with methods such as parametric software and scripting. Students study these methods in the context of emerging areas of architectural technology research such as Building Information Modeling (BIM), digital fabrication, building performance optimization, and generative design, among others. In the second half of the semester, students will work together to develop an independent project that applies computational methods to investigate a specific architectural design problem.

Pre- or Co-requisites

None

Objectives

The objective of this course is to introduce students in the Master of Science in Architecture to the outlook and methodologies they will need in order to undertake advanced independent research in later studios and seminars.

Specifically, students in ARCH5611 will acquire:

- Knowledge of fundamental computational design concepts, their history, and how they relate to architecture
- Knowledge of important figures, movements, and works within, and related to, computational design research
- Essential computational design and research skills
- A critical understanding of the strengths and limitations of various kinds of computing for architectural design problems

Instructional Method

This course is seminar-based with a weekly lab session. Lecture presentations introduce topics and frame them within an architectural and historical context. Lab sessions expand on these topics by allowing students to learn and practice computational techniques in an interactive setting. A seminar section invites discussion and connects the course material to research methodologies.

Means of student evaluation

Students will be evaluated on their performance in both in-class and out-of-class exercises. The following rubric will be used to assess student performance:

Class participation	10%
Skills homework	30%
Midterm project proposal	25%
Final project poster and presentation	35%
<u>Total</u>	<u>100%</u>

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Textbooks or resources

Casey Reas and Ben Fry. *Processing: a programming handbook for visual designers and artists* (MIT Press, 2007)

Linda Groat and David Wang. *Architectural Research Methods*. (Wiley, 2001)

Topical outline of course content

computational design; architectural research survey; research methodologies; variables and relationships; geometric topology and transformations; conditional logics; parametric design process; computational problem solving & debugging; research design & testing; solvers & optimization; data structures; generative design strategies; play

Course Number and Title

ARCH 5612 Research Methods II: History/Theory (3 credit hours)

Course Description

This Course undertakes a historical survey of the dominant theoretical rubrics designers have used to integrate scientific concepts into architectural research since the Enlightenment. This course is divided into two parts. The first half exposes students to the range of conceptual strategies and techniques architects have used to translate scientific concepts into architectural form, from direct experimentation of structural principles to analogical and metaphorical models of procedural design strategies. The second half of the course requires students to develop a working thesis statement of their independent research that places their work within one of the historical traditions reviewed in class.

Pre- or Co-requisites

None

Objectives

The objective of this class is to provide advanced students in the Master of Architecture major with the opportunity to place their independent research goals within an existing body of literature in the discipline of architecture; a necessary prerequisite for giving presentations of their work at academic venues within the discipline.

Instructional Method

This course consists of a series of in-class lectures, discussions, and presentations, and will be supplemented with a series of out-of-class reading assignments and writing exercises.

Means of student evaluation

Students will be evaluated on their performance in both in-class and out-of-class exercises. The following rubric will be used to assess student performance:

Class participation	10%
(3) Response papers	30%
In-class presentation(s)	15%
<u>Thesis Statement w/bibliography</u>	45%
Total	100%

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Textbooks or resources

Peter Galison, Emily Thompson (eds). *The Architecture of Science* (MIT Press, 1999)

Antoine Picone. *Digital Culture in Architecture* (Birkhauser Architectural Press, 2010)

Antoine Picone, Alessandra Ponte (eds). *Architecture and the Sciences: Exchanging Metaphors* (Princeton Press, 2003)

Philip Steadman. *The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts* (Routledge, 2008)

Caroline van Eck. *Organicism in Nineteenth-Century Architecture: an inquiry into its theoretical and philosophical background* (Architectura & Natura Press, 1994)

Topical outline of course content

This course will review three strategies of design:

Direct fabrication – These strategies directly implement the use of new technologies and/or materials to advance the field of architecture. Such strategies date all the way back to full-scale experimentations with new masonry techniques in Medieval and Roman churches, and include the postwar calibration of iron content in plate glass to influence the spectrum of ultra violet light that was emitted into interior spaces.

Analogical models of design – These design strategies tend to translate (or transpose) procedural models innovated in the sciences into the field of architecture, often for the purposes of rationalizing the design process or refining the aesthetic expression of structural systems and material orders.

Metaphorical models of design – These design strategies tend to conceptualize architecture as a visual language that employs the use of comparison to communicate abstract concepts or meanings to the viewer of specific artworks. The visual and linguistic tropes that are maintained between scientific concepts and architectural projects are not based on a strict procedural translation of strategies, but are more loosely bound by cognitive associations that can be maintained by specific word-images.

Course Number and Title

ARCH 7210 Idea Seminar (3 credit hours)

Course Description

This idea seminar is an introduction to the important issues that involve design within the fields of computing and architecture. Design has become increasingly important to computer scientists and at the same time computation has become important to designers. This course will serve as a survey of these overlapping interest.

Pre- or Co-requisites

Admission to the Dual Degree program in MArch-MSCS/MSIT or permission of instructor

Objectives

Upon completing this course, a student will:

- understand broadly the discourse about design within the fields of computing and architecture,
- be able to articulate concepts common to both fields and critically appraise their use,
- be able to write critically about design as it applies to computing and design.

Instructional Method

One third of the course will consist of lectures from faculty in computer science, architecture and SIS, and will include visits to labs and studios with active research agendas. The remainder of the class time will consist of seminar classes that discuss the readings and lectures. Students will be required to write three one-page response papers as part of the seminar class.

Students will be required to write a paper for this class on a subject chosen with the guidance of the faculty that focuses on the integration of methods from computing and design.

Students will be required to actively participate in class discussions, lead discussion for a minimum of one class, and make a presentation of their final paper to the class.

Means of student evaluation

Students will be evaluated on their performance in both in-class and out-of-class exercises. The following will be used to assess student performance:

Class participation	10%
(3) Response papers	25%
In-class presentation(s)	15%
<u>Final Paper w/bibliography</u>	<u>50%</u>
Total	100%

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Textbooks or resources

Stuart Card, Jock Mackinlay and Ben Schneirderman. *Readings in Information Visualization: Using vision to Think* (Morgan Kaufmann, New York, 1999)

Paul Dourish. *Where the Action Is: The Foundations of Embodied Interaction* (MIT Press, Cambridge, 2004)

Marshall McLuhan. *The Medium is the Message* (Bantam Books, New York, 1967)

Achim Menges and Sean Alquist. *Computational Design Thinking* (Wiley, New York, 2011)

William J. Mitchell. *The Architecture of Computation: Design Computation and Cognition* (MIT Press, Cambridge, 1990)

Paul Virillo. *The Aesthetics of Disappearance (Semiotext(e))/Foreign Agents* (MIT Press, Cambridge, 2009)

Colin Ware. *Visual Thinking for Design* (Morgan Kaufmann, New York, 2008)

Topical outline of course content

This course is organized around the following topics:

- technology within the cultural context,
- computational procedures as design tools,
- computation and perception,
- computing and physical setting,
- human centered computing.

Course Number and Title

ARCH/ITCS/ITIS 7211 Studio/Lab I (4 credit hours)
 ARCH/ITCS/ITIS 7212 Studio/Lab II (4 credit hours)

Course Description

The intent of the Studio/Lab sequence is to situate students with varying backgrounds in an educational environment that allows them to develop and test innovative computational design tools, applications and settings. Each semester will be jointly taught by faculty from architecture and CCI, and will be organized around a topic chosen by the participating faculty. Each focused topic will require expertise both in spatial design and computational design, and will result in prototypes and evaluation.

Pre- or Co-requisites

Admission to the Dual Degree program in MArch-MSCS/MSIT or permission of instructor

Objectives

Upon completion of this course a students will:

- understand the relationship between a broad conceptual overview and a specific solution,
- understand graphic, diagrammatic and procedural methods of problem definition and solution,
- understand the intersection of interests & methods between architecture and computing,
- be able to identify and use computational tools that are suited to a particular setting,
- be able to generate a specific solution and systematically test outcomes.

Instructional Method

Students will work in small teams. This course will be co-taught by faculty in computing and architecture. Instruction will combine aspects the studio setting familiar to architectural education and the laboratory setting typical of research within computer science. Both emphasize work on a common set of problems and the generation of new ideas and techniques; unique contribution from each setting will focus on the collaborative aspects of laboratory work and the design seeking methods of architecture.

Means of student evaluation

Student teams will present their work four times over the course of the semester to a panel of faculty, advanced students and interested professional from within the university and the wider community. Each presentation will include an overview of issues and concept, results of research and a presentation of a proposed design solution.

Review one	25%
Review two	25%
Review three	25%
<u>Final Review</u>	<u>25%</u>
Total	100%

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Textbooks or resources

Texts and resources will be specific to the topic and setting selected for each project. A complete bibliography will be available before the start of each semester.

Topical outline of course content

Although the setting and topic of each semester will vary, all studio/labs will cover the following topics:

- an examination of an existing setting and an analysis of user problems and needs,
- a presentation of important precedents,
- an explicit literature review of ideas and procedures, including unsolved opportunities,
- generation of alternative schemes,
- selection and implementation of a prototype, including specific elaboration of the spatial, social and computational components,
- an evaluation of the prototype.

Course Number and Title

ARCH 7213/ITCS6991/ITISS6991 Thesis (6 credit hours)

Course Description

The Thesis is the culmination of the student's work in the Dual Degree Program.

It allows students to pursue focused research based upon their previous experiences and coursework. The intent will be to demonstrate an understanding of an ongoing discourse, to form a clear hypothesis and to develop research methods suitable to implement and test the hypothesis.

Pre- or Co-requisites

Completion of all course work within the Dual Degree program in MArch-MSCS/MSIT curriculum.

Objectives

Expectations for learning and performance within this course are based on the development of a novel set of questions to be tested through critical examination of a research project.

Students should demonstrate understanding of the concepts and principles associated with their thesis topic, and should be capable of assembling a cohesive document demonstrating knowledge of the background information, representing the outcomes of their work, and drawing conclusions relative to other work in the field.

The outcome of this work is expected to be the preparation of a paper ready for submission to a national conference or journal.

Instructional Method

This semester will be defined by directed independent research. Within a series of objectives developed by the student, he/she will be required to show continued development of both background research and a suitable method of inquiry. A Thesis Committee comprised of three faculty from the Architecture, Computer Science and SIS faculty will direct and evaluate the student's work.

Means of student evaluation

The student will be evaluated through a series of four reviews spaced through the semester and two submittals of a thesis document, a draft at midterm and a final document upon completion.

Specify policies that apply to this course:

University policies on academic integrity, attendance and grading policy will apply to this course.

Textbooks or resources

Varies based on research topic

Topical outline of course content

Varies based on research topic.



J. Murrey Atkins Library
Library Consultation

To: Eric Sauda, School of Architecture

From: Lareese Hall, Arts + Architecture Librarian

Date: October 30, 2012

RE: Dual Degree - Master of Architecture and Master of Science in Computer Science/Master of Science in Information Technology

Summary of Librarian's Evaluation of Holdings:

Evaluator: Lareese Hall

Date: October 30, 2012

Please check one:

Holdings are superior _____

Holdings are adequate **x**

Holdings are adequate only if Dept. purchases additional items. _____

Holdings are inadequate _____

Comments:

The proposed Dual Degree (Master of Architecture and Master of Science in Computer Science or Information Technology) program envisions a heavy research focus within the existing research centers at the School of Architecture. Support for the subject areas established within the existing library budget allocations for firm-order and approval plan purchases can adequately support student and faculty research for this degree program.

The following table shows a sampling of the number of book titles held by Atkins Library within relevant subject headings or keywords.

Keyword (K) /Subject Heading (SH)	Total Holdings	Since 2000
Architecture and Technology (SH)	43	39
Arthitect* Technolog* (K)	1124	733
Architecture Technology Innovations (SH)	37	20
Architecture (K)	14318	4465
Architecture Modern 20 th Century (SH)	555	144
Architectur* Computer* (K)	1477	692
Information Technology (K)	6337	3411
Design Information Technology (K)	421	343

The dynamic nature of the curriculum requires up to date data and online resources – which are represented (and continue to grow) in the library collection. For example, over 3,000 electronic books are available in the “Books 24x7” resource when searching “information technology.”

As always, students will have access to databases such as the Avery Index, Science Direct, Art and Architecture Complete, ACM Digital Library, JSTOR and ARTstor, as well as the Atkins Library and Hight Architecture Library collections and the School of Architecture’s Visual Resources Collection. Materials may also be borrowed via interlibrary loan from other institutions. Additionally, web resources are curated, updated, and shared via library research guides.

Evaluator’s Signature: Lareese Hall

Date: October 30, 2012

ARCHITECTURE

• **Master of Architecture** • **Master of Urban Design** •
Master of Architecture and Urban

Design Dual Degree

SCHOOL OF ARCHITECTURE

STORRS ARCHITECTURE BUILDING -687-0101 coaa.uncc.edu/Academics/School-of-Architecture/

SCHOOL OF ARCHITECTURE DIRECTORS

CHRISTOPHER JARRETT, DIRECTOR -KELLY CARLSON-REDDIG, ASSOCIATE DIRECTOR

Master of Architecture Program Coordinator Peter Wong

Master of Urban Design Program Director

DAVID WALTERS

GRADUATE FACULTY

MONA AZARBAYJANI, ASSISTANT PROFESSOR JEFF BALMER, ASSISTANT PROFESSOR
ASSISTANT PROFESSOR DALE BRENTNUP, PROFESSOR

Chris Beorkrem

KELLY CARLSON-REDDIG, ASSOCIATE PROFESSOR

CHARLES DAVIS II, ASSISTANT PROFESSOR

GÁMEZ, ASSOCIATE PROFESSOR

ANDREW PERRY, ASSISTANT PROFESSOR

Thomas Forget, Assistant

Lee Gray, Associate

PROFESSOR, ASSOCIATE DEAN CHRISTOPHER JARRETT, PROFESSOR, DIRECTOR KYOUNG-HEE KIM,
ASSISTANT PROFESSOR

Ken Lamba, Professor, Dean Zhong-jie Lin, Associate Professor Emily Makas, Assistant
Professor John Nelson, Associate Professor Deb Ryan, Associate Professor Eric Sauda,
Professor

Nicholas Senske, Assistant Professor Greg Snyder, Associate Professor Michael Swisher,
Associate Professor David Thaddeus, Professor David Walters, Professor

Betsy West

Associate Professor Peter Wong, Associate Professor

The School of Architecture at UNC Charlotte offers a fully accredited program recognized for the outstanding quality of its faculty and students, its commitment to outreach and community involvement, and the quality and extent of resources offered through its labs, classrooms, and studios. Students organize their study around concentrations in Urbanism, Technology, or Design, Theory & Practice. Each area of study is well supported not only by coursework but also by travel and research opportunities. The College participates in several international exchange programs and offers summer travel and study programs in Spain, Italy, Canada, Australia, Great Britain, and China to broaden students' global understanding and further inform their work. The specialized study of Urban Design is also focused under the auspices of either a separate but interrelated graduate program in that discipline or a dual degree program that combines the two-year Master of Architecture program with graduate study in Urban Design. The Urban Design Program is based in UNC Charlotte's Center City Building in the heart of Uptown Charlotte.

Each curricular program offers each student significant individual time and attention, an engaged and accessible faculty, and a wealth of diversity through both the interests of the faculty and the varied background of the graduate students themselves. Because the College stresses the importance of 'making' in addition to thinking, the wood, metal, computer, and digital fabrication workshops are all equipped with the latest high performance equipment to enable students to both explore and embody their design ideas. Contact with the profession is also emphasized and the School is frequently enriched by the expertise of local practitioners. An extensive lecture series involving nationally and internationally recognized designers and theorists further enhances the educational environment and exposure to contemporary schools of thought.

MASTER OF ARCHITECTURE

The Master of Architecture degree (MArch) serves three groups of students is comprised of three tracks: 1) the three-year MArch I curriculum, which includes one summer session, accommodates students whose previous degree is outside the field of architecture; 2) the two-year MArch II curriculum serves students who have already completed a four-year degree program in architecture at a National Architectural Accrediting Board (NAAB) accredited institution; and (3) MArch II students who wish to combine their professional architecture studies with graduate work in Urban Design for a dual degree of MArch/M.U.D completed in three calendar years, including a summer studio spent in a foreign country. the MArch III track serving the needs of research-focused students who wish to collaborate with the research centers within the SoA. *The MArch III track is not accredited by NAAB*, and is primarily intended for students who already possess accredited degrees.

THE COURSES AND OPTIONS WITHIN EACH PROGRAM ARE SIMILAR, BUT THE ADVANCED STANDING OF MARCH II STUDENTS ALLOWS THEM TO COMPLETE THE DEGREE REQUIREMENTS IN TWO YEARS. STUDENTS IN BOTH PROGRAMS MUST COMPLETE A COMPREHENSIVE DESIGN STUDIO AND A THESIS PROJECT UNDER THE ADVISEMENT OF A FACULTY COMMITTEE. FULL-TIME ACADEMIC STATUS IS EXPECTED IN ALL PROGRAMS.

The curriculum of the MArch III track is specifically focused on an intensive research agenda within one of the research centers with the School; students are admitted to a specific concentration within the MArch III.

MArch II students who wish to combine their professional architecture studies with graduate work in Urban Design for a dual degree of MArch/M.U.D completed in three calendar years, including a summer studio spent in a foreign country.

Full-time academic status is expected in all programs.

THE MARCH I CURRICULUM INVOLVES THREE PRIMARY COMPONENTS: 1) THE FIRST YEAR (INCLUDING A SUMMER SESSION PRIOR TO THE FIRST FALL OF ENROLLMENT) FOCUSES ON ESTABLISHING A STRONG FOUNDATION IN FUNDAMENTAL DESIGN SKILLS, ARCHITECTURAL HISTORY AND THEORY, BUILDING-TO-SITE RELATIONSHIPS, AND INTRODUCTORY BUILDING TECHNOLOGIES; 2) THE SECOND YEAR FOCUSES ON COMPREHENSIVE ARCHITECTURAL DESIGN AND ITS RELATIONSHIP TO BUILDING SYSTEMS AS WELL AS ADVANCED STUDIES IN HISTORY, THEORY, AND BUILDING TECHNOLOGY; AND 3) THE THIRD YEAR IS FOCUSED ON THE STUDENT'S INDIVIDUAL FINAL PROJECT/THESIS RESEARCH.

THE MARCH II CURRICULUM IS TAILORED THROUGH THE ADVISING PROCESS TO THE PREVIOUS EDUCATIONAL BACKGROUND OF THE STUDENTS AND TO THEIR INDIVIDUAL PROFESSIONAL AND RESEARCH GOALS. THE PROGRAM INVOLVES TWO PRIMARY COMPONENTS: 1) THE FIRST YEAR FOCUSES ON COMPREHENSIVE ARCHITECTURAL BUILDING DESIGN AND TOPICAL STUDIOS WITH ADVANCED STUDIES IN THE AREA OF CONCENTRATION; AND 2) THE SECOND YEAR IS DEDICATED TO CONTINUED STUDY WITHIN THE AREA OF CONCENTRATION AS WELL AS FINAL PROJECT/THESIS RESEARCH.

The **MArch III Track** requires that students demonstrate evidence of potential to conduct research within one of the research centers within the SoA; the goal of this program is to involve each student in on-going collaborative research with faculty. The program involves three primary phases: 1) a two semester methods sequence which introduces students to a common set of procedures; 2) a six course sequence of specialized courses in the research area; and 3) a thesis sequence focused on developed, original research. Students who are admitted to the MArch III Track are admitted into a specific *concentration* within the Track, and are required to meet all academic standards and curriculum requirements of that *concentration*.

The MARCH/M.U.D Dual Degree is organized by integrating the MARCH II curriculum with the Master of Urban Design curriculum to provide the option of a 3- year dual degree. The Urban Design program is housed off-campus in the University's City Center Building. Most of the urban coursework is taught in this new Uptown location, utilizing the City of Charlotte itself as a laboratory for urban design exploration and research.

Admission Requirements

In addition to the admissions materials required by the Graduate School, the School of Architecture requires the submission of a portfolio of creative work. Applicants to the MARCH I curriculum should submit examples of work that offer evidence of creativity, self-motivation and critical appraisal. Such examples are not expected to be architectural in nature. Visual work such as painting, sculpture, furniture making, photography, etc. are acceptable, as are fiction writing, poetry, and any other reasonable evidence of sustained creative endeavor. Applicants to the MARCH II curriculum may offer similar evidence of any kind of creative endeavor but must also offer significant evidence of a mastery of architectural skill and knowledge. Applicants for the dual MARCH/M.U.D degree must meet the requirement for MARCH II curriculum plus clear evidence of an interest in urban studies.

The following requirements are expected of applicants to the MARCH I and/or MARCH II curricula:

- . 1) Students applying to the MARCH II curriculum who have completed the four-year professional track of the Bachelor of Arts in Architecture from UNC Charlotte must have an undergraduate degree GPA of 3.25 or above to receive automatic consideration for admission.**
- . 2) Students applying to the MARCH I curriculum with a bachelors from a discipline other than architecture must complete their undergraduate degree with a minimum 3.0 GPA overall.**
- . 3) Students apply to the MARCH I curriculum are expected to have completed introductory, college-level physics and pre-calculus courses.**
- . 4) All applicants (including students eligible for automatic consideration for admission) must fulfill the University's Graduate School application requirements and submit a copy of their Letter of Intent, a current curriculum vitae, and a portfolio of creative work at the time of their application.**

Students who do not meet the grade point average requirements noted above may still submit an application for admission to both programs but admission will be weighed against those meeting these requirements.

Degree Requirements

Concentrations within the MARCH I and MARCH II Curricula At the end of the third semester of study, MARCH I students have the option to choose an area of concentration that will guide their advanced studies. MARCH II students are required to choose an area of concentration during their first semester. Concentrations include: 1) Architectural Design, Theory, & Practice, 2) Urbanism, and 3) Architectural Technology. Concentration coursework is comprised of three elective courses (selected by the student from a larger set of eligible courses) and one elective studio with a focus similar to that of the concentration (offered as a topical studio). Concentration coursework is expected to support and culminate in thesis and/or capstone projects. The concentrations from which students can choose are described below:

1. Architectural Design, Theory, & Practice

This concentration focuses on a sophisticated and detailed study of building and site design arising from the re-presentational methods intrinsic to architecture. The areas of focus include: graphic description, historical and/or theoretical inquiries, as well as digital design and fabrication. This concentration includes both investigation and criticism of contemporary practice and practitioners as it pertains to the understanding, design, and making of architecture.

2. Urbanism

This concentration focuses on the critical role of architecture in the city - the process and specific intent of physical intervention in urban landscapes and infrastructures. Through the design of groups of buildings as well as larger scale urban areas, issues of policy, politics, finance, planning, place, and culture are introduced as part of the essential conception and history of the city fabric. This concentration in urbanism is supported by the Master of Urban Design program; many courses are provided in the University's off-campus Center City building.

3. Architectural Technology

This concentration focuses on study and experimentation addressing emerging issues of sustainable design and the creative development of building envelopes and systems that utilize both new and traditional materials, technology, and construction methods in innovative and beautiful ways. Seeking to explore the historical as well as contemporary realms of thermal, tactile and visual issues embedded in this field, students address appropriate material selection, methods of daylighting, passive and active systems for heating and cooling, etc. with consideration of both qualitative and quantitative outcomes.

Master of Architecture I Curriculum

The MARCH I curriculum requires a minimum of 96 hours to be completed during three academic years and one summer session.

College of Arts + Architecture 73

electives are described in the Course Descriptions section below.

Master of Architecture II Curriculum

The MARCH II curriculum requires a minimum of 60 credit hours to be completed during two academic years. If applicants accepted to the MARCH II curriculum are evaluated and found deficient in entry-level competencies, they will be required to enroll in additional coursework beyond the 60 credits to complete their degree. Below is a list of expected entry-level competencies.

The combined dual degree of Master of Architecture and Master of Urban Design (MARCH/M.U.D) requires a minimum of 74 credit hours to be completed in three calendar years of full-time study, including a summer studio in a foreign country, currently either in China or Great Britain. Details of this dual degree are listed under the following Master of Urban Design section. This three-year dual degree is only available to students in the Master of Architecture II curriculum. Applicants for this dual degree must meet all the admission requirements and entry-level competencies for the MARCH II curriculum.

Expected Entry-Level Competencies for MARCH II Candidates:

- 1) A minimum of six semesters of architectural design studios;
- 2) A minimum of three semesters of architectural history and/or theory courses;
- 3) A minimum of four semesters of building technology courses equivalent to the following UNC Charlotte's School of Architecture courses:

ARCH 5301 Material and Assembly Principles (3) ARCH 5302 Environmental Systems Principles (3) ARCH 5303 Structural Principles (3)

ARCH 5304 Struct

To ensure that incoming students are evaluated appropriately, the School of Architecture requires candidates for the MARCH II curriculum to furnish the Architecture Graduate Admissions Committee and Graduate Program Coordinator relevant course descriptions and syllabi of all architecture courses passed and completed which may satisfy entry-

LEVEL COMPETENCIES. THE FOLLOWING CURRICULUM IS MODELED FOR STUDENTS ACCEPTED TO THE PROGRAM WHO HAVE SATISFIED ALL ENTRY-LEVEL COMPETENCIES.

Master of Architecture II CURRICULUM Year One

FALL (15 HOURS)

ARCH 7101 DESIGN STUDIO: TOPICAL (6)

SUMMER (6 HOURS)

Year One

ARCH 6100 DESIGN STUDIO: BASICS (3) ARCH 6601 IDEAS IN ARCHITECTURE (3)

FALL (15 HOURS)

ARCH 6101 DESIGN STUDIO: FUNDAMENTALS (6) ARCH 5201 ARCHITECTURAL HISTORY I: PREHISTORY-1750

**(3)
FUNDAMENTALS (3)**

ARCH 6602 REPRESENTATION I: FUNDAMENTALS (3)

SPRING (15 HOURS)

**ARCH 6102 DESIGN STUDIO: FUNDAMENTALS (6)
PRESENT (3) ARCH 5302 ENVIRONMENTAL SYSTEMS PRINCIPLES (3) ARCH 6603
REPRESENTATION II: DIGITAL FUNDAMENTALS**

- ARCH 5202 Architect

(3)

FALL (15 HOURS)

Year Two

ARCH 7101 DESIGN STUDIO: TOPICAL (6)

ARCH 5203 Architect

**CONTEMPORARY THEORY (1950-PRESENT) (3) ARCH 5303 STRUCTURAL PRINCIPLES (3)
5604 COMPUTATIONAL METHODS (3)**

ARCH

SPRING (15 HOURS)

**ARCH 7102 DESIGN STUDIO: COMPREHENSIVE (6) ARCH 5304 STRUCTURAL SYSTEMS (3)
7201 DESIGN METHODOLOGIES (3)**

ARCH

ARCH 6050 Architectural Elective (3)

SUMMER (3-6 HOURS - OPTIONAL)

ARCH 6050 ARCHITECTURAL Elective (3)
(3) ARCH 7950 Graduate Summer Research Study (3)

ARCH 7120 Graduate S

FALL (15 HOURS)

Year THREE

ARCH 7103 Design Studio: Topical (6)
ARCH 5305 Building Systems Integration (3) ARCH 6050 ARCHITECTURAL Elective (3)

ARCH 7202 Final Pro

SPRING (15 HOURS)

ARCH 7104 Final Project/Thesis Studio (6) ARCH 5206 Professional Practice (3) ARCH 5605 Computational Practice (3) ARCH 6050 ARCHITECTURAL Elective (3)

Note: MARCH I candidates, as an option, may pursue an area of concentration (three concentration electives are required). Qualifying concentration

ARCH 5203 ARCHITECTURAL HISTORY III: SURVEY OF CONTEMPORARY THEORY (1950–Present) (3)

–OR– ARCH 5215 AX Elective (3) ARCH 5305 Building Systems Integration (3) ARCH 5604 Computational Methods (3)

SPRING (15 HOURS)

ARCH 7102 Design Studio: Comprehensive (6) ARCH 7201 Design Methodologies (3)
6306 Technology Topic (3)

ARCH

ARCH 6050 Architectural Elective (3)

Summer (3-6 hours - optional) ARCH 6050 ARCHITECTURAL Elective (3)
GRADUATE SUMMER INTERNATIONAL STUDY (3) ARCH 7950 Graduate Summer Research Study (3)

ARCH 7120

STUDENTS' ABILITY TO INDEPENDENTLY IDENTIFY AND ENGAGE A SPECIFIC SET OF ISSUES, A BUILDING TYPE, AND A SITE.

As an alternative option to a final design project, an architectural thesis may be proposed. This is defined as an architectural research project that engages and explicates primary source material leading to project work possessing an original argument. This second type of project may include design-related materials as part of the final submission. Primary source material from data and information gathered from original texts and documents, interviews, raw data resulting from experiments, demographic data, etc. shall be a part of the project. The thesis should claim an original argument that leads to creative and/or research-oriented activities in the final semester. Thesis students identify the issue(s) to be engaged and the research and/or design methods through which this engagement will take place. The student works independently with a committee during the final semester of

STUDY TO COMPLETE THE THESIS.

ALL STUDENTS MUST DEMONSTRATE COMPREHENSIVE DESIGN COMPETENCY BEFORE THEY ENGAGE A THE FINAL YEAR OF STUDY. FOR STUDENTS IN THE MARCH/M.U.D DUAL DEGREE PROGRAM, THE THESIS AND PRECEDING FINAL PROJECT/THESIS DOCUMENT COURSE (ARCH 7202) MUST HAVE A CLEAR FOCUS ON THE INTEGRATION OF ARCHITECTURAL AND URBAN DESIGN ISSUES.

A FINAL DESIGN PROJECT OR A THESIS PROJECT COURSE OF STUDY IS DETERMINED AT THE BEGINNING OF A STUDENT'S FINAL YEAR OF HIS/HER PROGRAM IN ARCH 7202.

GRADUATE ADVISING

A CRITICAL COMPONENT OF ANY SUCCESSFUL GRADUATE PROGRAM IS ACADEMIC ADVISING AND GUIDANCE DURING THE COURSE OF A STUDENT'S PROGRAM OF STUDY. THE PRIMARY ADVISOR FOR ALL GRADUATE STUDENTS IN THE SCHOOL OF ARCHITECTURE WILL BE THE ASSOCIATE DIRECTOR, IN CONSULTATION WITH THE APPROPRIATE GRADUATE COORDINATOR/DIRECTOR. STUDENTS ENTERING THEIR FINAL YEAR WILL BE ASKED TO COMPLETE A PLAN OF STUDY AND IDENTIFY COMMITTEE MEMBERS FROM THE FACULTY TO SERVE AS ADVISORS FOR THEIR THESIS.

TRANSFER CREDIT

TRANSFER CREDIT IS NORMALLY LIMITED TO A MAXIMUM OF SIX (6) HOURS OF GRADUATE CREDIT. UNDER SPECIAL CIRCUMSTANCES, A GREATER NUMBER OF HOURS MAY BE TRANSFERRED IF A STUDENT CAN DEMONSTRATE THAT THE COURSES TO BE TRANSFERRED MEET OR EXCEED THE CONTENT AND RIGOR OF GRADUATE CURRICULA OFFERED BY THE SCHOOL OF ARCHITECTURE.

WAIVER CREDIT

WAIVER CREDIT MAY BE ALLOWED IF A STUDENT CAN DEMONSTRATE THAT A COURSE OR COURSES TAKEN AT THE POST-

FALL (15 HOURS)

Year Two

ARCH 7103 DESIGN STUDIO: TOPICAL (6)
ARCH 6307 TECHNOLOGY TOPIC (3)

ARCH 7202 Final Pro
ARCH 6050 Architectural Elective

SPRING (15 HOURS)

ARCH 7104 FINAL PROJECT/THESIS STUDIO (6) ARCH 5206 PROFESSIONAL PRACTICE (3) ARCH 6050 ARCHITECTURAL ELECTIVE (3)

Note: MARCH II candidates are required to pursue an area of concentration. Three (3)

QUALIFYING ARCH 6050 COURSES ARE MANDATORY TO SATISFY THE REQUIRED CONCENTRATION SEQUENCE. SEE COURSE DESCRIPTIONS SECTION BELOW.

Requisite & Capstone Experiences Comprehensive Design Project The Comprehensive Design Project (ARCH 7101) serves as the requisite studio experience that bridges between foundational studios and advanced studios for MARCH I students. The Comprehensive Design Project serves as the point of entry into the program for MARCH II students. Taken in the fourth semester of enrollment for MARCH I students and in the first semester of enrollment for MARCH II students, the Comprehensive Design Project is defined as an architectural building design project that comprehensively demonstrates the student's ability to conceptualize, prepare, organize, and design a building having a specific programmatic type. All students must demonstrate comprehensive design competency before they enroll in topical studios.

Final Project and Thesis Options

The normative capstone project for both MARCH I and MARCH II students occurs in the final year. For MARCH I and MARCH II students, this is typically defined as an architectural design project that demonstrates the

UNC Charlotte Graduate Catalog 2012-2013

UNDERGRADUATE LEVEL THAT EQUALS OR EXCEEDS IN BOTH CONTENT AND RIGOR OF A COURSE OR COURSES REQUIRED IN THE GRADUATE CURRICULUM. GRADES RECEIVED FOR SUCH COURSES MUST BE B OR ABOVE. IN SUCH CASES, CREDIT WILL BE PERMITTED BY EXAMINATION. IF A REQUIRED COURSE IN THE CURRICULUM IS WAIVED, THE STUDENT WILL BE ALLOWED TO FILL THOSE CREDIT HOURS WITH ANOTHER COURSE AS ADVISED BY THE ASSOCIATE DIRECTOR, IN CONSULTATION WITH THE GRADUATE COORDINATOR/DIRECTOR.

Committees

FOR CANDIDATES ENGAGING A THESIS RESEARCH PROJECT, EACH STUDENT IDENTIFIES THREE (3) SCHOOL OF ARCHITECTURE FACULTY MEMBERS WHO WILL CONTRIBUTE TO HIS OR HER INTERESTS, RESEARCH, AND FINAL PROJECT. IN ADDITION, ONE (1) COMMITTEE MEMBER FROM OUTSIDE THE SCHOOL OF ARCHITECTURE FACULTY IS REQUIRED. ADDITIONAL INDIVIDUALS RELEVANT TO A STUDENT'S FINAL PROJECT MAY ALSO PARTICIPATE AS EX-OFFICIO MEMBERS.

THE MEMBERS OF THE COMMITTEE SHOULD OFFER SPECIFIC AREAS OF EXPERTISE AND INSIGHT RELATIVE TO THE PROPOSED PROJECT. MEMBERS OF THIS COMMITTEE SHOULD BE INVOLVED WITH THE PROJECT BEGINNING WITH THE PREPARATION OF THE RESEARCH DOCUMENT UNDERTAKEN IN ARCH

7202 (Final Project/Thesis Document) in the Fall semester.

The responsibility of each committee member involves the following:

- . 1) Review and provide feedback on three (3) successive versions of the student's written research document produced in ARCH 7202 (Final Project/Thesis Document)**
- . 2) Be present and provide feedback at all public presentations (4-5) conducted in ARCH 7104 (Final Project/Thesis Studio)**
- . 3) Provide feedback on other occasions as requested by the student**
- . 4) Meet with instructors of ARCH 7202 and ARCH 7104 as required for coordination**
- . 5) Deliberate with other committee members on the report concerning degree conferral**

Application for Degree

In order to meet UNC Charlotte's Graduate School requirements for degree candidacy, all graduate students must receive a written certification from their department confirming successful project completion. This report requires approvals from members of each student's committee as well as an endorsement from the Chair of Instruction. The completion of this report results in the granting of the degree. In addition, each student should make application for his/her degree by completing the online Application for Degree through Banner Self Service no later than the filing date specified in the University Academic Calendar.

Research and Off-Campus Opportunities

The opportunity exists for MARCH II students who take ARCH 7120 or ARCH 7950 to engage directed research with a professor or one of the School of Architecture's official research centers. There are three study options that students may engage:

1. Funded Research

Students may elect to receive course credit for work performed with faculty and/or other researchers who are conducting professional, scholarly, applied, and/or creative research within specialized fields of architecture theory, history, technology, etc. Current research initiatives include lighting and energy studies, building envelope studies, urban studies, design/fabrication, and design/theory studies. These activities are engaged through the Lighting & Energy Technology Lab, the Digital Arts Center, the Charlotte Community Design Center, and through individual faculty research projects and ongoing architectural practice. Students may also complete the requirements by securing their own grants and funding to study a well-defined and focused architectural issue. Student initiated research

OF THIS TYPE MUST BE APPROVED BOTH BY THE STUDENT'S ACADEMIC ADVISOR AND BY THE GRADUATE PROGRAM COORDINATOR.

2. Independent Design

STUDENTS MAY ELECT TO RECEIVE ARCHITECTURAL ELECTIVE CREDIT FOR A CLASS BY COMPLETING AND ENTERING A REGIONAL, NATIONAL, OR INTERNATIONAL ARCHITECTURAL COMPETITION. THIS OPTION IS INTENDED TO FURTHER STUDENTS' STUDY OF IDEAS AND ISSUES RELEVANT TO THEIR THESIS PROJECT AND AREA OF CONCENTRATION.

3. OFF-CAMPUS AND/OR INTERNATIONAL STUDY

STUDENTS MAY ELECT TO ENROLL IN SCHOOL OF ARCHITECTURE OFF-CAMPUS OR INTERNATIONAL STUDY PROGRAMS, AND/OR ENROLL IN SIMILAR PROGRAMS OFFERED BY OTHER NAAB ACCREDITED INSTITUTIONS. THE COLLEGE HAS LONG-STANDING STUDY/TRAVEL PROGRAMS IN ITALY, SPAIN, AND CHINA. STUDENTS HAVE ALSO PURSUED STUDY OPPORTUNITIES IN THE NETHERLANDS, AUSTRALIA, CANADA, ETC. GLENN MURCUTT'S MASTER CLASS (AUSTRALIA) AND BRIAN MACKAY LYONS' GHOST PROJECT (CANADA) ARE AMONG THE INTERNATIONAL STUDY OPTIONS THAT STUDENTS MAY UNDERTAKE.

ASSISTANTSHIPS, TUITION DIFFERENTIALS, AND SCHOLARSHIPS A NUMBER OF TEACHING AND RESEARCH ASSISTANTSHIPS, SCHOLARSHIPS, IN-STATE AND NON-RESIDENT NEW MASTER'S STUDENT TUITION AWARDS, AND GRADUATE TUITION ASSISTANTSHIP PROGRAM SUPPORT (GASP), ARE AVAILABLE TO BOTH HIGH PERFORMING MARCH I AND MARCH II CANDIDATES. AWARDS ARE BASED ON THE APPLICANT'S ACADEMIC MERIT OR PROMISE OF ACADEMIC MERIT, AND/OR ON DEMONSTRATION OF NEED. TUITION AWARDS ARE TYPICALLY PAIRED WITH TEACHING AND/OR RESEARCH ASSISTANTSHIP STIPENDS. SCHOOL OF ARCHITECTURE SCHOLARSHIPS ARE ALSO AWARDED PENDING A REVIEW OF STUDENT APPLICATIONS TO VARIOUS PRIVATE ENDOWMENTS. IN ADDITION, OTHER AWARDS AWARDED UNDER INDEPENDENT FACULTY OR RESEARCH CENTER GRANTS ARE ALSO AVAILABLE.

PROGRAM ACCREDITATION

NATIONAL ARCHITECTURAL ACCREDITING BOARD

THE SCHOOL OF ARCHITECTURE MAINTAINS ACCREDITED STATUS THROUGH THE NATIONAL ARCHITECTURAL ACCREDITING BOARD, WHICH REVIEWS THE CURRICULUM, FACILITY, FACULTY, AND PROGRAM RESOURCES ANNUALLY. IN ADDITION, THE NAAB CONDUCTS AN INTENSIVE SITE VISIT EVERY SIX YEARS. (THE MARCH I AND MARCH II PROGRAMS ARE FULLY ACCREDITED, BUT *THE MARCH III PROGRAM, BECAUSE OF ITS RESEARCH FOCUS, IS NOT AN ACCREDITED PROGRAM.*) THE SCHOOL HAS MAINTAINED FULL ACCREDITATION STANDARDS AS PRESCRIBED BY THIS BOARD AND INCLUDES THE REQUISITE STATEMENT:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S.

PROFESSIONAL DEGREE PROGRAMS IN ARCHITECTURE, RECOGNIZES THREE TYPES OF DEGREES: THE BACHELOR OF ARCHITECTURE, THE MASTER OF ARCHITECTURE, AND THE DOCTOR OF ARCHITECTURE. A PROGRAM MAY BE GRANTED A 6-YEAR, 3-YEAR, OR 2-YEAR TERM OF ACCREDITATION, DEPENDING ON THE EXTENT OF ITS CONFORMANCE WITH ESTABLISHED EDUCATIONAL STANDARDS.

MASTER'S DEGREE PROGRAMS MAY CONSIST OF A PRE-PROFESSIONAL UNDERGRADUATE DEGREE AND A PROFESSIONAL GRADUATE DEGREE THAT, WHEN EARNED SEQUENTIALLY, CONSTITUTE AN ACCREDITED PROFESSIONAL EDUCATION. HOWEVER, THE PRE-PROFESSIONAL DEGREE IS NOT, BY ITSELF, RECOGNIZED AS AN ACCREDITED DEGREE.

FOLLOWING THE COMPLETION OF A PROFESSIONAL DEGREE PROGRAM ACCREDITED BY THE NAAB, MOST STATES REQUIRE THE FUTURE ARCHITECT TO COMPLETE AN INTERNSHIP WORKING FOR A REGISTERED ARCHITECT BEFORE SITTING FOR THE LICENSING EXAMINATION. THE MARCH PROGRAM (BOTH THE MARCH I AND MARCH II CURRICULA) WAS GRANTED A FULL 6-YEAR NAAB ACCREDITATION STATUS IN 2010. THE NEXT FORMAL ACCREDITATION REVIEW OF THE SCHOOL OF ARCHITECTURE'S MARCH PROGRAM WILL BE IN 2016.

MASTER OF URBAN DESIGN

THE MASTER OF URBAN DESIGN (M.U.D) DEGREE CAN BE TAKEN AS A STAND-ALONE QUALIFICATION, OR MAY BE COMBINED WITH A MASTER OF ARCHITECTURE TWO-YEAR DEGREE FOR A DUAL MARCH/M.U.D DEGREE. OPPORTUNITIES ALSO EXIST FOR STUDENTS TO CRAFT INDIVIDUALLY APPROVED CURRICULA COMBINING THE M.U.D DEGREE WITH THE M.A. IN GEOGRAPHY/COMMUNITY PLANNING FOR A DUAL URBAN DESIGN AND PLANNING GRADUATE DEGREE WITH THE MASTER OF SCIENCE IN REAL ESTATE (M.S.R.E.) FOR A DUAL DEGREE IN URBAN DESIGN AND REAL ESTATE DEVELOPMENT.

THE STAND-ALONE MASTER OF URBAN DESIGN DEGREE (M.U.D) SERVES TWO GROUPS OF STUDENTS: (1) STUDENTS WITH AN ARCHITECTURE OR LANDSCAPE ARCHITECTURE UNDERGRADUATE OR GRADUATE DEGREE (INCLUDING A B.ARCH FIVE-YEAR DEGREE) AND (2) THOSE HOLDING A B.A. OR B.S. UNDERGRADUATE DEGREE OR A MASTER'S DEGREE FROM DISCIPLINES OTHER THAN ARCHITECTURE. FOR THOSE STUDENTS WITH AN ARCHITECTURAL OR LANDSCAPE UNDERGRADUATE OR GRADUATE QUALIFICATIONS, THE COURSES WITHIN THE PROGRAM CAN BE COMPLETED IN ONE CALENDAR YEAR/THREE CONSECUTIVE SEMESTERS OF FULL-TIME ENROLLMENT FROM LATE AUGUST ONE YEAR TO EARLY AUGUST THE FOLLOWING YEAR (FALL-SPRING-SUMMER).

FOR STUDENTS WITH UNDERGRADUATE OR GRADUATE DEGREES IN PLANNING OR OTHER NON-DESIGN DISCIPLINES, THE PROGRAM BEGINS WITH AN INTENSIVE SECOND SUMMER SEMESTER EXPERIENCE IN THE JULY PRECEDING ENROLLMENT IN THE FALL SEMESTER. STUDENTS WITH AN INTERIOR DESIGN BACKGROUND WILL BE EVALUATED ON AN INDIVIDUAL BASIS REGARDING ENROLLMENT IN THIS PREPARATORY SUMMER CLASS.

THE M.U.D PROGRAM PREPARES STUDENTS AND PROFESSIONALS TO ENGAGE COMPLEX ISSUES FACED BY TOWNS AND CITIES ACROSS AMERICA. THE PROGRAM USES THE FAST CHANGING CHARLOTTE

metropolitan region as its laboratory to provide students with relevant design skills to influence urban life under the pressures of globalization, environmental change, and cultural diversification. To emphasize this global perspective, part of the final Summer semester will be based outside the USA, primarily in China or Europe, involving design problems in an international context and with input from faculty in those countries.

The first semester in the Fall focuses on the fundamental skills and techniques of urban design; the second Spring semester foregrounds issues of

urban sustainability, infrastructure, and urban open space, and the third semester during the summer months examines advanced topics of vertical urbanism through complex urban design problems in locations outside the USA. Each semester also includes two seminar courses, some of which comprise individual elective choices from a menu of topics in urban design and urban history and theory.

Students with an undergraduate degree from an accredited architectural program may also apply for a 3-year M.Arch/M.U.D dual degree, combining the two-year Master of Architecture program with the 12-month M.U.D program. Details of this dual degree program are noted below and also in the preceding *Catalog* section regarding the Master of Architecture program.

Admission Requirements

Online applications must be made to the UNC Charlotte Graduate School, either for the stand-alone M.U.D degree or the dual M.Arch/M.U.D degree. This dual degree has its own application option within the online system. Students seeking other dual degree opportunities with programs in other colleges (M.U.D/M.S.R.E. and M.U.D/M.A. in Geography [Community Planning]) should initiate individual counseling with the appropriate Program Coordinators/Directors prior to application and complete separate applications for each degree program. Applicants should study all the varying requirements carefully and should comply with all the application mandates of the other programs.

In addition to the admissions materials required by the Graduate School, the School of Architecture requires the submission of a portfolio of creative work. Applicants to the M.U.D program should submit examples of work that offer evidence of creativity, self-motivation and critical appraisal. Such examples do not have to be solely urban design-related, but may also include visual work such as painting, sculpture, furniture making, photography, writing, and other reasonable evidence of their creative abilities. However, the portfolio must include some clear visual and/or written evidence of an interest in urban settings and conditions. Specific admission requirements by the School include:

- 1) An UNDERGRADUATE DEGREE WITH A 2.75 GRADE POINT AVERAGE (GPA) OVERALL, AND A JUNIOR/SENIOR GRADE POINT AVERAGE OF 3.0 OVERALL
- 2) A STATEMENT OF PURPOSE DESCRIBING THE OBJECTIVES RELATIVE TO GRADUATE STUDY
- 3) FULFILLMENT OF THE UNIVERSITY'S GRADUATE SCHOOL APPLICATION REQUIREMENTS IN EFFECT AT THE TIME OF APPLICATION

STUDENTS WHO DO NOT MEET THE GPA REQUIREMENTS NOTED ABOVE MAY STILL SUBMIT AN APPLICATION FOR ADMISSION; HOWEVER, THIS WILL BE WEIGHED AGAINST THOSE MEETING THESE REQUIREMENTS.

STUDENTS ENROLLED IN THE FIFTH YEAR OF THE BACHELOR OF ARCHITECTURE PROGRAM AT THE UNC CHARLOTTE SCHOOL OF ARCHITECTURE MAY APPLY FOR ADMISSION INTO THE M.U.D PROGRAM FOR ENTRY AFTER COMPLETION OF THEIR FIFTH YEAR. THEY WILL NEED TO FULFILL ALL NORMAL APPLICATION REQUIREMENTS DURING EITHER THE FALL OR SPRING SEMESTERS OF THEIR FIFTH YEAR PROGRAM AND, IF ADMITTED TO THE M.U.D PROGRAM, CAN COMPLETE A SEQUENCE OF THE B.ARCH PROFESSIONAL DEGREE PLUS THE M.U.D POST- PROFESSIONAL QUALIFICATION IN TWO CALENDAR YEARS.

RECOMMENDATION FOR AUTOMATIC ADMISSION

STUDENTS APPLYING TO THE M.U.D PROGRAM WHO HAVE COMPLETED EITHER THE FOUR-YEAR BACHELOR OF ARTS IN ARCHITECTURE OR THE FIVE-YEAR BACHELOR OF ARCHITECTURE FROM UNC CHARLOTTE MUST HAVE AN UNDERGRADUATE DEGREE GPA OF 3.25 OR ABOVE TO RECEIVE A RECOMMENDATION TO THE GRADUATE SCHOOL FOR AUTOMATIC ADMISSION.

MASTER OF URBAN DESIGN CURRICULUM

THE M.U.D PROGRAM REQUIRES A MINIMUM OF 36 HOURS TO BE COMPLETED (39 HOURS FOR NON-DESIGN BASED APPLICANTS). THERE ARE TWO STUDY OPTIONS: (1) A FULL-TIME PROGRAM THAT CAN BE COMPLETED IN THREE CONSECUTIVE SEMESTERS (FALL-SPRING-SUMMER), OR (2) A PART-TIME OPTION FOR WORKING PROFESSIONALS THAT MAY BE COMPLETED GENERALLY WITHIN TWO YEARS. HOWEVER, PART-TIME STUDENTS SHOULD NOTE THAT THE FOREIGN-BASED SUMMER STUDIO HAS TO BE TAKEN AS A FULL-TIME COMMITMENT.

STUDENTS ENROLLED IN THE DUAL DEGREE MARCH II/M.U.D PROGRAM COMPLETE THEIR EXTENDED PROGRAM IN THREE CALENDAR YEARS OF FULL-TIME STUDY, INCLUDING THE SUMMER SEMESTER SPENT ABROAD IN EITHER CHINA OR EUROPE. THE DUAL DEGREE OPTION IS ONLY AVAILABLE TO FULL-TIME STUDENTS.

A) FULL-TIME M.U.D. OPTION YEAR ONE

SUMMER (3 HOURS)

MUDD 5101 Design Studio: Basics (3) (FOR NON- DESIGN BASED APPLICANTS ONLY. MAY BE

waived if determined in the admissions process.)

FALL (12 HOURS)

MUDD 6101 FUNDAMENTALS OF URBAN DESIGN STUDIO (6)

MUDD 5601 COMMUNITY PLANNING WORKSHOP (3) MUDD 6205 TOPICS IN URBAN HISTORY AND THEORY

ELECTIVE (3)

--OR-- MUDD 6050 TOPICS IN URBAN DESIGN ELECTIVE (3)

SPRING (12 HOURS)

MUDD 6102 URBAN OPEN SPACE AND INFRASTRUCTURE DESIGN STUDIO (6)

MUDD 5602 PLANNING, LAW, AND URBAN DESIGN (3) MUDD 6204 TOPICS IN URBAN HISTORY AND THEORY

ELECTIVE (3) --OR-- MUDD 6050 TOPICS IN URBAN DESIGN ELECTIVE (3)

SUMMER (12 HOURS)

MUDD 7101 ADVANCED VERTICAL URBANISM / GLOBAL URBAN DESIGN STUDIO (FOREIGN-BASED FIRST SUMMER SESSION) (3)

MUDD 7101 ADVANCED VERTICAL URBANISM / GLOBAL URBAN DESIGN STUDIO (CHARLOTTE-BASED SECOND SUMMER SESSION) (3)

MUDD 6204 TOPICS IN URBAN HISTORY AND THEORY ELECTIVE (3)

MUDD 6050 TOPICS IN URBAN DESIGN ELECTIVE (3)

Note: Elective options must contain at least one Urban History and Theory elective.

B) PART-TIME OPTION

SUMMER (3 HOURS)

SUMMER (9-12 HOURS)

First Summer session studio must be taken as a full-time load abroad. Second Summer session studio must be taken immediately upon return to Charlotte. Second Summer session elective may be deferred. MUDD 6050 TOPICS IN URBAN DESIGN ELECTIVE

(INTEGRATED WITH FOREIGN STUDIO) (3)

M UDD 6204 Topics in U

Elective (3)*

M UDD 7101 Advanced Vertical Urbanism /

Urban Design Studio (Foreign-based first Summer

session) (3)

M UDD 7101 Advanced Vertical Urbanism / G

Urban Design Studio (Charlotte-based second Summer session) (3)

**THIS ELECTIVE MAY BE DEFERRED TO THE FOLLOWING FALL FOR PART-TIME STUDENTS (AS MUDD 6205).*

FALL (3 HOURS)

Year Three

Year One

MUDD 6205 TOPICS IN URBAN HISTORY AND THEORY Elective (3)**

***Seminar to be taken in Fall if MUDD 6204 was not taken in Summer.*

Note: Elective options must contain at least one Urban History and Theory elective.

THE CURRICULUM FOR THE DUAL M.ARCH/M.U.D DEGREE IS NOTED BELOW. THE CURRICULA FOR THE DUAL DEGREE OPPORTUNITIES OF M.U.D/M.A. GEOGRAPHY (COMMUNITY PLANNING) AND M.U.D/M.S.R.E. (REAL ESTATE) ARE DEVELOPED TO SUIT THE INDIVIDUAL STUDENT INTERESTED IN THESE OPTIONS ONCE THE STUDENT IS ACCEPTED ONTO BOTH PROGRAMS.

MASTER OF ARCHITECTURE / MASTER OF URBAN DESIGN CURRICULUM THE DUAL M.ARCH/M.U.D DEGREE REQUIRES A MINIMUM OF 84 HOURS TO BE COMPLETED.

MASTER OF ARCHITECTURE AND URBAN DESIGN DUAL DEGREE

MUDD 5101 Design Studio: Basics (3) (For non- design based applicants only. May be waived if determined in the admissions process.)

FALL (6 HOURS)

MUDD 5601 Community Planning Workshop (3) MUDD 6205 Topics in Urban History and Theory

Elective (3) --OR-- MUDD 6050 Topics in Urban Design Elective (3)

Spring (6 hours)

MUDD 5602 Planning, Law, and Urban Design (3) MUDD 6204 Topics in Urban History and Theory

Elective (3) --OR-- MUDD 6050 Topics in Urban Design Elective (3)

Year Two

Fall (15 hours)

Year One

Fall (6 hours)

ARCH 5203 Architectural History III: Survey of Contemporary Theory (1950-Present) (3)

ARCH 5305 Building Systems Integration (3) ARCH 5604 Computational Methods (3)

ARCH 7101 Design Studio: Topical (6)

Spring (12 hours)

ARCH 5205 Architecture History Topic (3) OR ARCH 6050 Architecture Elective (3)

MUDD 6101 Fundamentals of Urban Design Studio (6)

Spring (6 hours)

MUDD 6102 Urban Open Space and Infrastructure Design Studio (6)

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ARCH 6306 Technology Topic 1

ARCH 7102 Design Studio: Com

Year Two

Fall (12 hours)

MUDD 5601 Community Planning Workshop (3) MUDD 6101 Fundamentals of Urban Design Studio

(6)

M UDD 6205 Urban History / Theory Elective

Spring (12 hours)

**ARCH 7201 Design Methods (3)
6102 Urban Open Space and Infrastructure**

M UDD 5602 Planning

Design Studio (6)

Summer (12 hours)

**MUDD 6050 Urban Design Elective
MUDD 7101 Vertical Urbanism / Global Urban**

M UDD 6204 Urban History

Design Studio (Foreign-based first Summer session)

(3)

M UDD 7101 Vertical Urbanism / Global Urban

Design Studio (Charlotte-based second Summer session) (3)

equals or exceeds in both content and rigor of a course or courses required in the graduate curriculum. If a required course in the curriculum is waived, the student will be allowed to fill those credit hours with another course as advised by the Associate Director of the School of Architecture, in consultation with the Director of the Urban Design Program.

Application for Degree

In order to meet UNC Charlotte's Graduate School requirements for degree candidacy, all graduate students must receive a written certification from their department confirming a successful capstone project. This report requires approval from the Director of the Urban Design Program, as well as the signatures from the graduate faculty members involved in the project. The completion of this report results in the granting of the degree. In addition, and prior to this completion, each student should make application for his/her degree by completing the online Application for Degree through Banner Self Service no later than the filing date specified in the University Academic Calendar.

Research and Study Abroad Opportunities

M.U.D students may engage in research activities via the School of Architecture's Design + Society Research Center (D+SRC). All students automatically obtain international study experience through the required Global Summer Studio.

ASSISTANTSHIPS, TUITION DIFFERENTIALS, and SCHOLARSHIPS A NUMBER OF RESEARCH ASSISTANTSHIPS, SCHOLARSHIPS, and TUITION WAIVERS are available to M.U.D candidates. AWARDS are based on the applicant's academic merit or promise of academic merit, and/or on demonstration of need.

STUDIO COURSES

ARCH 6100. Design Studio: Basics. (3) Cross-listed as MUDD 5101. Prerequisite: B.A., B.S. or equivalent college degree. This introductory graduate course in architecture is intended for students newly admitted to the School of Architecture's 3+ year professional program. This five-week, intensive studio-based course includes an introduction to freehand drawing, 2-D composition, 3-D modeling, and visual theory. In addition, the course offers an introduction to a variety of related topics (history, urbanism, structure, lighting, materials, etc.) that serve as critical departure points for understanding and making architectural and urban

FALL (9 HOURS)

Year THREE

ARCH 6050 ARCHITECTURE Elective (3)
Final Project/Thesis Document (3)

ARCH 6307 Technology

(APPROVED URBAN FOCUS REQUIRED)

SPRING (12 HOURS)

ARCH 5206 PROFESSIONAL PRACTICE (3) ARCH 5605 COMPUTATIONAL PRACTICE (3) ARCH 7104
Final Project/Thesis Studio (6)

GRADUATE ADVISING

A CRITICAL COMPONENT OF ANY SUCCESSFUL GRADUATE PROGRAM IS ACADEMIC ADVISING AND GUIDANCE DURING THE COURSE OF A STUDENT'S PROGRAM OF STUDY. THE PRIMARY ADVISORS FOR ALL URBAN DESIGN GRADUATE STUDENTS IN THE SCHOOL OF ARCHITECTURE WILL BE THE ASSOCIATE DIRECTOR OF THE SCHOOL OF ARCHITECTURE, IN CONSULTATION WITH THE DIRECTOR OF THE URBAN DESIGN PROGRAM.

TRANSFER CREDIT

TRANSFER CREDIT MAY BE GRANTED UNDER SPECIAL CIRCUMSTANCES (E.G., APPROVED POST-BACCALAUREATE STATUS PRIOR TO ENTRY INTO THE PROGRAM) AND IS LIMITED TO A MAXIMUM OF SIX HOURS OF GRADUATE CREDIT.

WAIVER CREDIT

WAIVER CREDIT MAY BE ALLOWED IF A STUDENT CAN DEMONSTRATE THAT A COURSE OR COURSES TAKEN IN HIS OR HER PRIOR UNDERGRADUATE OR GRADUATE CURRICULUM

DUAL DEGREE: MASTER OF ARCHITECTURE AND MASTER OF SCIENCE IN COMPUTER SCIENCE OR INFORMATION TECHNOLOGY

THE PREMISE OF THE DUAL DEGREE PROGRAM IN ARCHITECTURE AND COMPUTER SCIENCE/ SOFTWARE AND INFORMATION SYSTEM IS THAT DESIGN HAS BECOME INCREASINGLY IMPORTANT TO COMPUTER SCIENTISTS AND AT THE SAME TIME COMPUTATION HAS BECOME IMPORTANT TO DESIGNERS. THIS PROGRAM IS A UNIQUE CURRICULUM THAT SYSTEMATICALLY COMBINES THE STRENGTH AND INSIGHTS OF THESE DISCIPLINES.

AS COMPUTING HAS MATURED AS A DISCIPLINE, IT HAS EXPANDED ITS FOCUS TO INCLUDE THE PHYSICAL AND VIRTUAL SETTINGS IN WHICH USERS INTERACT WITH THE MACHINE. SPECIALTIES LIKE HUMAN COMPUTER INTERACTION, UBUIQUOUS COMPUTING, GAMING AND VISUALIZATION REQUIRE AN UNDERSTANDING NOT ONLY OF

the logic of the machine, but also the logic of the user. Based on these concerns, the design thinking ability that is an integral part of design training is of interest as an alternative paradigm that may change the way that students think and operate.

Within architecture, there is a unique opportunity to develop students who will have the knowledge to lead the integration of the computer into architectural practice and research. As firms rely more and more on computation, those who know how to think, program and script will be able to change the way architects design and practice. We see the day fast approaching when the IT department at firms is not separate but rather is at the core of what architects do. Already, in advanced practices across the world, computing and design are intermingling.

The curriculum integrates computer science/ SIS students and architecture students working collaboratively on tasks that challenge both fields. Early in the curriculum, the cohorts with architecture background and those with computing background will be taking courses to provide basic competency in a new discipline.

Students in this dual degree program will enroll simultaneously in the Master of Architecture program and either the Computer Science degree (courses labeled ITCS) or the Information Technology degree (courses labeled ITIS).

CURRICULUM

Summer

- ARCX 7210 Idea Seminar (3)

Fall Year One

- ARCX 5611 Research Methods I: Computational (3)
- ARCX 5607 Digital Fabrication (3)
- ITCS 6112 OR ITIS Core (3)
- *ITCS Design OR ‡ARCX 6110 OR *ITIS Design (3)
[Course required for entering students with undergraduate computing degrees are preceded by (‡); course required for entering students with architecture background are preceded by (*).]

Spring Year One

- ARCX 7211/ ITCS7212/ITIS7212 Studio Lab One (4)
- ARCX 5606 Scripting (3)
- ITCS 6114 OR ITIS Core (3)
- ITCS Breadth OR ITIS Core (3)

Fall Year Two

- ARCX 7212/ TCSS7212/TCISS7212 Studio Lab Two (4)
- ARCX 5612 Research Methods II (3)
- TCSS Breadth *OR* TCIS Core (3)

SPRING Year Two

- ARCX 7213/TCSS6991/TCISS6991 Thesis (6)
- TCSS Elective *OR* TCIS Elective (3)

Total Dual Degree (47)

The centerpiece of the curriculum is a three-semester sequence of studio/lab courses taught jointly by CCI and Architecture faculty that are focused on issues and problems that are researched by design teams.

Admission

. Students would be admitted to this program upon recommendation of a joint admissions committee of faculty from Architecture, Computer Science and SIS. Admitted students would be expected to complete all coursework outlined above to receive both degrees. Upon successful completion of all requirements, students would receive the Master of Architecture III degree and the Master of Computer Science or Master of Information Technology degree.

All students admitted to the Master of Architecture III program must be enrolled in the Dual Masters program.

Note: Other programs within the School of Architecture are accredited through the National Architectural Accrediting Board, but the Master of Architecture III degree program, because of its research focus, is not an accredited program that can lead to licensure as a registered architect.

Admission to the dual degree program requires either:

- a degree in architecture or a related design discipline OR
- an undergraduate degree in computer science, information technology or a related discipline

Students without an undergraduate degree in a computing-related discipline must meet the following additional admission requirements:

Architecture and Computer Science option:

Students are expected to have knowledge of two higher programming languages, data structures, operating systems or computer architecture, and an additional upper-level computing course. Also, knowledge of calculus, discrete mathematics, and linear algebra is strongly recommended. Work experience at a professional level in the computer industry or satisfactory completion the

Advanced GRE in Computer Science may be substituted for some or all of the subject area admission requirements, subject to review by the joint admissions committee.

Architecture and Information Technology option:

Students admitted to the It option must have one of the following:

- A summer programming course (boot camp) offered by CCI
- An introductory programming course as part of a Bachelor's degree
- A certificate in a programming course offered online that is approved by the admission committee for the dual degree program.

COURSES in ARCHITECTURE (ARCH)

UNC CHARLOTTE GRADUATE CATALOG 2012-2013

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PROJECTS. (*Summer*)

ARCH 6101. Design Studio: Fundamentals. (6)

Corequisite: ARCH 5602. THIS INTRODUCTORY ARCHITECTURAL DESIGN STUDIO FOCUSES ON FUNDAMENTAL CONCEPTS OF ARCHITECTURE AS WELL AS THE ACQUISITION AND PRACTICE OF A WIDE RANGE OF TECHNICAL AND GRAPHIC SKILLS AND MEDIA. IT IS INTENDED TO COMPLEMENT THE READING AND WRITING ENGAGED IN ARCH 5601 AND TO SERVE AS AN ARENA TO EXPLORE AND TEST THE ISSUES ENCOUNTERED IN THAT COURSE THROUGH THE ACT OF MAKING. (*FALL*)

ARCH 6102. Design Studio: Fundamentals. (6)

Prerequisite: ARCH 6101. THIS INTRODUCTORY ARCHITECTURAL DESIGN STUDIO FOCUSES ON THE DEVELOPMENT OF SITE, SPACE, AND DESIGN PROCESS ISSUES AS WELL AS THE CONTINUED ACQUISITION AND PRACTICE OF A VARIETY OF TECHNICAL AND GRAPHIC SKILLS. EXPLORATION INTO THE CREATIVE AND APPROPRIATE USE OF A VARIETY OF MEDIA IS ADDRESSED. (*SPRING*)

ARCH 7101. Design Studio: Topical. (6) Prerequisite: ARCH 6102 or equivalent. FOCUSES ON ISSUES RELEVANT TO CURRENT ARCHITECTURAL PRACTICE AND/OR EXPLORATION OF ARCHITECTURAL THEORY. STUDENTS CHOOSE FROM AMONG SEVERAL SECTIONS OF THIS STUDIO, EACH OF WHICH ADDRESSES A DIFFERENT SET OF ISSUES. THE ISSUES ADDRESSED AS WELL AS THE PEDAGOGICAL APPROACH OF THESE STUDIOS ARE DEFINED BY THE FACULTY TEACHING THEM. ALL STUDENTS MUST TAKE

a minimum of one Topical Design Studio within their area of Concentration. *(Fall)*

ARCH 7102. Design Studio: Comprehensive. (6)

Prerequisite: ARCH 7101. Focuses on a site-specific project emphasizing technological and systemic issues that lead toward a comprehensive building design. *(Spring)*

ARCH 7103. Design Studio: Topical. (6) Prerequisite: ARCH 7102. Focuses on issues relevant to current architectural practice and/or exploration of architectural theory. Students choose from among several sections of this studio, each of which addresses a different set of issues. The issues addressed as well as the pedagogical approach of these studios are defined by the faculty teaching them. All students must take a minimum of one Topical Design Studio within their area of Concentration. Course may be repeated with permission. *(Fall)*

ARCH 7104. Final Project/Thesis Studio. (6)

Prerequisite: ARCH 7103. Offers support and structure for students undertaking their individualized project in the MARCH I program. Focuses upon an individually defined architectural design project, or upon an individually defined research project (see **Requisite & Capstone Experiences** for more details).

The faculty member teaching ARCH 7104 coordinates the activities of the students and their advisory committees. *(Spring)*

Core Courses

ARCH 5201. Architectural History I: Prehistory- 1750. (3) Global survey of architecture and urbanism from prehistory to 1750. Explores key examples of buildings and cities as well as the theoretical, environmental, political, economic, technological, and cultural context in which they were built. Provides a general knowledge of the formal, spatial and ornamental characteristics that distinguish the built environment of distinct historic and traditional building cultures. *(Fall)*

ARCH 5202. Architectural History II: 1750-Present. (3) Prerequisite: ARCH 5201 or permission of instructor. Global survey of architecture and urbanism from 1750 to the present. Explores key architectural and urban ideas, designers, buildings, and urban projects as well as how they were shaped by their environmental, political, economic, technological, and cultural context. *(Spring)*

ARCH 5203. Architectural History III: Survey of Contemporary Theory (1950-Present). (3) Prerequisite: ARCH 5202 or permission of instructor. Survey of architecture theory from 1950 to the present. Focuses on the key ideas, texts, debates, and discourse that have informed architectural practice in the late twentieth and early twenty-first century. *(Fall)*

ARCX 5206. Professional Practice. (3) An introduction to the objectives of the practice of architecture, its responsibilities and procedures, and emerging alternative forms of practice and as they pertain to the role of the architect. *(Spring)*

ARCX 5301. Materials and Assembly Principles. (3)

Introduces the quantitative and qualitative characteristics of architectural materials, systems, and processes. Students will be introduced to the physical properties of materials relevant to their application in construction, assembly, and detail systems. Topics will include masonry, concrete, wood, steel, glass, cladding, and roofing and flooring materials and their assemblies. *(Fall)*

ARCX 5302. Environmental Systems Principles. (3)

Prerequisite: ARCX 5301 or permission of instructor. Introduces qualitative and quantitative analytical methods commonly used to assess the impact of environmental forces on occupant thermal and luminous comfort, energy performance, and regional sustainability. Students will be introduced to the interplay between climatic events, patterns of building

use, and the architectural variables that inform the appropriate application of building systems technology. Topics include building envelope performance, and the introduction of passive and mechanical systems for heating, cooling, illuminating, and ventilating buildings. *(Spring)*

ARCX 5303. Structural Principles. (3) Prerequisite: ARCX 5301 or permission of instructor. Introduces issues relevant to the fundamentals of structures including statics, strength, and stability of materials. Students will be introduced to structural concepts, systems, and the tracing of structural loads through basic principles, physical modeling, and theoretical and analytical methods. Topics will include interrelationship between strain, stress, and stability, as well as the implications of tension, compression, shear, torsion, and bending. *(Fall)*

ARCX 5304. Structural Systems. (3) Prerequisite: ARCX 5303. Introduces specific structural applications of wood, steel, concrete, and masonry systems commonly used in small-scale commercial/institutional buildings. Students will be introduced to the design of beams, columns, walls, joinery, and connections appropriate to each material type through theoretical, analytical, and computer simulation methods. *(Spring)*

ARCX 5305. Building Systems Integration. (3)

Prerequisites: ARCX 5304. Introduces a set of advanced issues related to the comprehensive, systemic integration of building technology systems commonly used in large-scale buildings through case study, analytical, and simulation methods. Topics address the resolution of building structure, materials, environmental systems, mechanical systems, electrical systems, life safety, building water supply and waste, and conveying systems in building design. *(Fall)*

ARCX 5604 Computational Methods. (3)

Prerequisite: ARCX 6603. Corequisite: ARCX 7101 or permission of instructor. Introduces students to the fundamental concepts of computation through explorations with basic scripting and parametric tools. The goal is to understand the potential of computation and the role it can play as part of one's design process, not as a collection of specific tools, but as a way of thinking about design. *(Fall)*

ARCX 5605. Computational Practice. (3)

Prerequisite: ARCX 5604 or permission of instructor. Capstone course for digital media and computational studies in the School of Architecture. The goal of this seminar course is to provide students with experience using advanced digital tools and methods, including digital fabrication, parametrics, Building Information Modeling/Management (BIM),

SCRIPTING, and

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PERFORMANCE ANALYSIS IN PREPARATION FOR PROFESSIONAL PRACTICE AND/OR ADVANCED GRADUATE RESEARCH. (*SPRING*)

ARCH 6306/6307. TECHNOLOGY TOPIC. (3)

PREREQUISITE: ARCH 5305 OR PERMISSION OF INSTRUCTOR. Focuses on the study of topical areas of technology in architecture. Provide an in-depth extension of the five required technology courses. The course may be selected from a number of designated technology courses that examine specific issues contributing to architecture as a process of investigation, innovation, analysis and/or research. May be repeated for credit as course topics change. (*FALL, SPRING*)

ARCH 6601. Ideas in Architecture. (3) Corequisite: ARCH 6100. This seminar class concentrates on fundamental concepts, issues, and working knowledge specific to design in architecture. It is intended to complement the design problems encountered in ARCH 6100 (studio) and to serve as a critical platform to raise issues that are not always evident in studio making alone. Primary topics addressed include order, form and space, site, type, and architectural meaning. (*Summer*)

ARCH 6602. Representation I: Fundamentals. (3)

PREREQUISITE: ARCH 6100. **Corequisite:** ARCH 6101 OR PERMISSION OF INSTRUCTOR. A fundamental visual and architectural skills course that includes lessons in: visual composition, 2D design and communication, 3D physical models, graphic and photographic image manipulation, and craft in design. Also includes readings and criticism, which address the artistic and architectural correlation of these skills. (*FALL*)

ARCH 6603. Representation II: Digital Fundamentals. (3) Prerequisite: ARCH 6602. **Corequisite:** ARCH 6102. Introduces students to architectural drafting (2D) and modeling (3D) using digital tools and processes. The expected outcome of this course is a student who is skillful, adaptable, and, most of all, critical towards digital media. (*SPRING*)

ARCH 7201. Design Methodologies. (3) Focuses on examination of analytic and synthetic models including information processing, programming, and implementation activities used to structure the architect's design process, conjectural models, and methods specific to the architect's creative skills. (*SPRING*)

ARCH 7202. Final Project/Thesis Document. (3)

PROVIDES STRUCTURE FOR THE FORMATION AND EXPLORATION OF THE IDEAS AND ISSUES RELEVANT TO

THE PROJECT IN THE MARCH PROGRAM. THIS PROJECT IS TO BE UNDERTAKEN INDIVIDUALLY BY STUDENTS IN THEIR FINAL YEAR OF STUDY. THIS COURSE RESULTS IN THE DOCUMENTATION OF RELEVANT RESEARCH IN PREPARATION FOR THE EXECUTION OF THE PROJECT, WHICH IS CARRIED OUT IN ARCH 7104. *(Fall)*

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CONCENTRATION ELECTIVES

CONCENTRATION ELECTIVES ARE THOSE NON-STUDIO COURSES THAT FULFILL THE REQUIREMENT FOR

COURSEWORK WITHIN A STUDENT'S CHOSEN AREA OF CONCENTRATION. POSSIBLE AREAS OF CONCENTRATION ARE (1) ARCHITECTURAL DESIGN, THEORY, & PRACTICE, (2) URBANISM, AND (3) ARCHITECTURAL TECHNOLOGY. THREE NON-STUDIO COURSES IN THE STUDENT'S CHOSEN AREA OF CONCENTRATION ARE REQUIRED TO COMPLETE THE CURRICULUM. (SEE CURRENT SCHOOL OF ARCHITECTURE PROSPECTUS FOR A COMPLETE LISTING OF COURSES.) ADDITIONAL URBANISM CONCENTRATION COURSE ARE LISTED UNDER THE MASTER OF URBAN DESIGN COURSE DESCRIPTIONS UNDER MUDD 6204/6205 AND MUDD 6050. ARCH 6050 IS A REPEATABLE COURSE THAT MAY BE TAKEN BY GRADUATE STUDENTS IN THE SCHOOL OF ARCHITECTURE AND MAY BE REPEATED FOR CREDIT AS TOPICS CHANGE.

ARCHITECTURAL DESIGN, THEORY, & PRACTICE

ARCH 6050. Digital Theory. (3) An introduction in the fundamentals of digital design & representation techniques, within the context of theoretical works since the industrial revolution. The course will develop a set of aesthetic, performative, and method based criteria for understanding digital work. This framework will serve as a starting point for students to assess a developing set of digital design values.

ARCH 6050. Digital Methods 1. (3) Course focusing on modeling, shading and rendering using Maya 3D software. The class will explore other relevant representation tools, and the proper methods for achieving seamless integration between such tools.

ARCH 6050. Digital Methods 2. (3) This course explores the generative and parametric methods as they impact the practice of architecture. A comprehensive use of various software packages will exploit the computer's ability to cross-reference geometric relationships, data sets, and parametric variables.

ARCH 6050. Digital Fabrication 1. (3) This course employs ideas from industrial, mechanical, and technical construction as precedent for digital spaces and programs. The course will analyze contemporary projects to understand related programs, constructed spaces, and conceptual ideas. Using parametric design techniques, spaces and designs will be computer-generated using dynamic systems and modifiers.

ARCH 6050. Digital Fabrication 2. (3) A continuation of "Digital Fabrication 1," utilizing more advanced hardware and software fabrication techniques.

ARCH 6050. Modern Perception: Linear Perspective and Motion Pictures. (3) This seminar examines how techniques of spatial representation interact with architectural and urban ideas. The extent to which ideas of perception create, as opposed to reflect, cultural change is debatable. Both linear perspective and cinema are paradigms of spatial perception that coincide with broader revolutions in art and culture. These two practices will serve as case studies through which to explore the complex relationship between art, architecture, and vision.

ARCH 6050. ARCH/ART: ART, ARCHITECTURE AND THE BUILT ENVIRONMENT. (3) THIS COURSE WILL VISIT AND ANIMATE FAMILIAR AND UNCANNY EXAMPLES OF THE BUILT ENVIRONMENT, USING AS ITS REFERENCE THE RELATIONSHIP BETWEEN ARCHITECTURE'S TENETS AND CONTEMPORARY VISUAL ARTISTS' MOTIVES ACROSS THE FIELDS OF ARCHITECTURE, ART, MEDIA, AND POLITICS. IT EXAMINES HOW ARTISTS BOTH BORROW FROM AND MOVE BEYOND ARCHITECTURE BY BUILDING AN AESTHETIC AND CRITICAL CASE FOR THE NECESSARY AND CULTURALLY REDEMPTIVE PRACTICE OF ART WITHIN ARCHITECTURAL CONTEXTS.

ARCH 6050. An Architecture of Questionable Effects. (3) DISCUSSES THE PROMISE AND PROBLEMS OF ARCHITECTURE UNDERSTOOD AS A SET OF PERCEPTUAL EFFECTS. THIS POSITION OF INTERPRETING BUILDINGS IS ROOTED IN THE DISCIPLINE'S CONNECTION TO THE VISUAL ARTS – FOR EXAMPLE: THE DISCOVERY OF PERSPECTIVE AND ITS INFLUENCE ON PAINTING, THE INVENTION OF PHOTOGRAPHY AND THE MOVING IMAGE, OR THE USE OF ELECTRONIC MEDIA FOR CREATING AESTHETIC COMPLEXITY IN THE BUILDING ARTS.

ARCH 6050. Representation: Explores of the Architectural Image. (3) OFFERS AN EXPLORATION OF DESIGN THEMES IN THE TWO-DIMENSIONAL, IMAGE-BASED WORLD OF THE ARCHITECT. IT DEFINES CONTEMPORARY ARCHITECTURAL REPRESENTATIONS AND SURVEYS IDEAS THAT CENTER ON DRAWING IN ARCHITECTURAL PRACTICE.

Urbanism

ARCH 6050. Introduction to Urban Design. (3)

CROSS-LISTED WITHIN MUDD 6050 TOPICS IN URBAN DESIGN. COURSE COVERING HOW CITIES, SUBURBS, AND METROPOLITAN AREAS DEVELOP AND CHANGE. TOPICS RANGE FROM GRAND IDEAS PROPOSED BY INDIVIDUALS TO SMALLER MORE INCREMENTAL PROCESSES CARRIED OUT THROUGH COLLABORATING PARTIES.

ARCH 6050. Community Planning Workshop. (3)

CROSS-LISTED AS MUDD 5601. THIS COURSE SERVES TO ACQUAINT STUDENTS WITH CONTEMPORARY THEORY AND PRACTICE IN PLANNING AND URBAN DESIGN; TO GIVE STUDENTS EXPERIENCE IN APPLYING PLANNING AND URBAN DESIGN THEORY AND METHODS TO ACTUAL PROBLEMS; TO PROVIDE STUDENTS WITH EXPERIENCE IN COMPILING AND ANALYZING COMMUNITY SCALE DATA, WORKING WITH

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CITIZENS, PROFESSIONAL PLANNERS AND DESIGNERS, AND ELECTED OFFICIALS, TO PROVIDE STUDENTS WITH EXPERIENCE IN THE PREPARATION OF ORAL REPORTS AND TECHNICAL DOCUMENTS; AND TO EXAMINE WHAT IT MEANS FOR THE PLANNER AND URBAN DESIGNER TO DEMONSTRATE ETHICAL RESPONSIBILITY TO THE PUBLIC INTEREST, TO CLIENTS AND EMPLOYERS, AND TO COLLEAGUES AND

oneself.

ARCX 6050. Shaping the American City. (3) Cross- listed as MUDD 6050. Throughout the twentieth century urban politics, policies, and programs have shaped the space of the American City, including the architecture of urban settlement patterns, public space, transportation, and housing. An understanding of the political/social/historical/spatial foundations of urban policies in relation to the American City is critical in understanding the development of our current urban patterns, the spatial distribution of people and resources, and the future production of architecture and design in urban settings. Issues will be framed in the interstices of the space/knowledge/power triad. *(On demand)*

ARCX 6050. Strategies for the Public Realm. (3)

Cross-listed as MUDD 6050. Contemporary theories and practices in urban design underscore the connection between the citizen and the public realm and between the physical and social attributes of the city. Urban design is not so much an aesthetic as it is a strategy for change, transformation, dialogue, and interaction. Urban design is the link between architecture and urbanism, tying together the city's disparate parts and celebrating the complexity and connectedness of space. *(On demand)*

ARCX 6050. Dilemmas of Modern City Planning. (3)

Cross-listed as MUDD 6050. The patterns of man's settlement are predicated upon particular paradigms of urbanism, as well as more pragmatic concerns of politics, economics and geography. An examination of these influences and their interconnections provides the necessary theoretical and historical background from which to propose improvements to the contemporary landscapes of our cities. *(Spring)*

ARCX 6050. Post-CIAM Discourse on Urbanism. (3)

Cross-listed with MUDD 6204/6205. This seminar examines the evolution of postwar urbanism as a particular synthesis of cultural criticism, shift of direction in practice, and various architectural experimentations. They represented innovative responses to the changed sociopolitical and cultural conditions from different perspectives. The central focus of investigation will be the essential theories of urbanism and experimental design practice from the mid 1950s to the early 1970s.

ARCX 6050. Real Estate Development Studies: Introduction to Real Estate Development. (3) Cross-

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listed as MUDD 6050. The production of buildings requires both architectural and economic skill. Likewise, the production of our landscape is both a private and public

endeavor. To balance these skills and endeavors requires an understanding of basic facts. This course focuses on an introduction to the real estate development process. Course material, lectures and case studies focus on the identification and evaluation of critical assumptions and issues related to market and site feasibility, financial feasibility, planning, acquisition, construction, and operation of economically viable commercial real estate projects. (Fall)

ARCX 6050/4213-U01/6133. Public Space in Cities. (3) Cross-listed as MUDD 6050. The public realm has historically constituted a set of real places possessing physical form and has been the setting for civic and communal life. This traditional role of public space is brought into question by the advent of cyberspace, with unknown consequences for city form. This course focuses on the origins and transformations of public space within American culture, and to understand principles of urban design as they have related to the creation of public space during different historical periods. Course material will also focus on the historical connection between the public realm and democratic principles, and the threats to the continued existence of truly public space in American cities.

ARCX 6050. Urban Form, Context and Economics. (3) Cross-listed as MUDD 6050. Urban development and redevelopment can be considered typologically in two main categories: large "catalyst" projects (performing arts centers, entertainment complexes, and other large, mixed-use projects); and smaller, incremental interventions in the urban setting that lack glamour but contribute much needed depth and complexity to the urban environment. This course focuses on how and why urban projects are formulated by public and private interests. It engages the conceptual origins, design development and production of urban projects large and small, in an effort to understand the relationship between development economics, social factors, program development, design concepts and urban contexts.

ARCX 6050. The Changing Urban Landscape: The Development of Uptown Charlotte, 1875-Present. (3) Cross-listed as MUDD 6050. The design and evolution of cities is a reflection of evolving attitudes about gender, race, crime and socioeconomic conditions as well as governmental interventions and the efforts of private enterprise. Charlotte's Center City is a unique result of those many influences and serves as an excellent laboratory for gaining an understanding of the forces that shape the making of the places we live. Specific topics will include the

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development of First Ward from a public housing ghetto to a mixed income neighborhood, the demise of the Brooklyn neighborhood in Second Ward, professional sports in Uptown Charlotte, the development of Fourth Ward, the civic patron/ corporate factor, transportation in Uptown Charlotte and finally, the 2010 and 2020 plans for Uptown.

Architectural Technology

ARCH 6050. Site Sustainability and Planning. (3) A project-based seminar that introduces concepts and methods for developing ecologically based site plans within the context of economic and social issues. Students work in teams to generate redevelopment plans for local sites in Charlotte, North Carolina.

ARCH 6050. Sustainability and Climate Responsive Architecture. (3) Introduces the technical and practical issues of climate responsive architecture by providing an overview of passive control systems. The class provides a survey of solar, wind and other environmental opportunities as means for understanding passive techniques for building.

ARCH 6050. Building Shapes and Skins for Daylighting. (3) A case study course that evaluates building form and enclosure lighting data from an existing building. Computer simulated parametric analysis are then generated to study alternative design scenarios. The course utilizes Spot and UNC Charlotte-Light simulation tools, including Eco-tech, DaySim and Radiance.

ARCH 6050. Parametric Methods: Notes on Sustainable Design Decision Making. (3) A formal design decision-making process is developed in this course through the elaboration of the systemic principles that describe the role of architecture to reconcile the pertinent utilization of mechanical, electrical and material system choices. Issues of the implicit role of the architect to understand the application of appropriate building systems technology, public policy decisions and economic solutions that provide for the sustained delivery of human, environmental and physical performance are brought to bear through a variety of methods.

ARCH 6050. Bio-climatology & Cross Cultural Assessments of Traditional Built Form. (3) Through this course a conceptual framework of social and technical determinism is developed from a single disciplinary point of view based on the traditions of building design science and environmental technology informed through social science theory. Topical field assessments will be developed through a research-based introduction of the Human Relations Area Files to address the cultural/societal and technical realms that describe traditional built form.

The issues that have influenced and are currently impacting human settlement, building, and tectonic design are explored through the use of the Maxoney Tables to weave the relevant connections to built formal response and the interpretation of climatically responsive architectural principles of design sustainability.

ARCH 6050. Architectural Luminous Environment. (3) The architectural luminous environment is introduced in this course as a continuum of technical/material innovation from 1850 to the present. Issues of daylighting and electric lighting are explored as an integrated systems approach to evaluate current sustainable design practices that relate to energy utilization and appropriate resource allocation. Case study research methods of assessment, computational analysis, physical modeling and economic evaluation will be introduced.

ARCH 6050. Sustainable Design: Ecology, Technology and Building. (3) Sustainable design is the term most commonly used when describing building carried out according to sound ecological and environmental perspectives. Utilizing a lecture/seminar/case study format the course content will survey the principles of environmentally sensitive design, review case studies of "green building" applications, and explore various concepts for integrating sustainable planning and building principles into the form making process of architectural design. The process includes an analysis of bioclimatic comfort, climate responsive design, integration of passive heating and cooling systems, and the basis for specifying sustainable building materials. The intention of the course is to develop a general understanding of the fundamental principles underlying sustainable design and the impact on the building design process and built form.

ARCH 6050. Building Information Modeling (BIM). (3) Course addressing issues and opportunities afforded by Building Information Modeling (BIM) programs. It includes: (1) an introduction to definitions, principles and strategies, (2) an understanding of how BIM allows an integrated design process that encourages creative and appropriate solutions, and (3) to engage BIM software use via the modeling of a building example.

Architectural History Topics

Architectural History topics offer a focused study of issues in specific areas of history. These courses complement the architectural history survey courses (ARCH 5201, ARCH 5202, ARCH 5303), and serve to inform and develop in-depth research, writing, and presentation skills. Entering MARCH II students satisfying ARCH 5303 will be required to take an

Architectural History topic to satisfy their degree requirement. These courses do not count towards completion of Concentration requirements unless cross-listed. (See current School of Architecture Prospectus for a complete listing of courses.)

ARCX 5204/5205. Architectural History: Topics. (3)

Prerequisite: ARCX 5203 or permission of instructor. Study of topical areas of history and theory of architecture. These courses develop in-depth research, writing, and presentation skills. May be repeated for credit as topics vary. (Fall, Spring)

ARCX 5204/5205. Renewing the Modernist Debate: The Theory and Works of Adolf Loos. (3) At the beginning of the 21st century, architecture finds itself in a state of uncertainty and change. Like 100 years before, architects are pursuing ways of reconfiguring the aesthetic, technical, and social demands of their profession in hopes of establishing legitimacy in their work. This class will investigate the buildings and ideas of the early 20th century architect, Adolf Loos (1870-1933), as a vehicle to come to grips with our own precepts about modern architectural theory and practice.

ARCX 5204/5205. Histories of Latin American Architecture. (3) Cross-listed as LAM 6350. Surveys the ways by which Latin American architectures (both north and south of the US/Mexico border) have come to be seen within the western canon. In this sense, this course is not purely historical; rather, the class will explore Latin American architectures chronologically but from a post-colonial perspective rooted in the present.

ARCX 5204/5205. Popular Modernism: Charlotte Architecture in the '50s and '60s. (3) This course will investigate the influence of 1950s and 60s modern international architecture on Charlotte and the Piedmont region. The goals of the course are: (1) to probe deeper into why this type of architecture became popular in the region, in both its private and public iterations, and (2) to link this interest with similar developments in other American cities, and to discuss such developments within the context of international architecture of the same period.

ARCX 5204/5205 . The Public Space of Cinema: Transformation of the City 1850-1940. (3) (M) Cross-listed as ARCX 6050. Explores the effect of cinema on the physical and cultural landscape of European cities between the revolutions of 1848 and World War II. To provide a broader context, the course examines the rise and fall of the avant-garde in the European metropolis and ways in which revolutionary notions of artistic production affect the fabric of the city. Cinema is understood both as a medium through which to communicate radical architectural and

URBAN IDEAS AND AS AN ARCHITECTURAL TYPOLOGY THAT OVERTURNS CONVENTIONAL NOTIONS OF URBAN PUBLIC SPACE.

ARCX 5204/5205. City Design in the 20th Century. (3) Cross-listed as MUDD 6215. City design in the 20th century has been based on a series of intellectual ideas about what constitutes the "ideal city" on the one hand, and a series of more pragmatic notions about the construction of city space derived from political and/or economic power on the other. The legacy of these conflicting paradigms and intentions can be read in city development and in unbuilt projects across Europe and America. These buildings and projects provide signposts for future efforts of city building in the early years of the 21st century.

ARCX 5204/5205. Post-CIAM Discourse on Urbanism. (3) Cross-listed as MUDD 6215. This seminar examines the evolution of postwar urbanism as a particular synthesis of cultural criticism, shift of direction in practice, and various architectural experimentations. They represented innovative responses to the changed sociopolitical and cultural conditions from different perspectives. The central focus of investigation will be the essential theories of urbanism and experimental design practice from the mid 1950s to the early 1970s.

ARCX 5204/5205. Planning, Law and Urban Design. (3) Cross-listed as MUDD 6215. Examines the impact of planning law on the urban form of cities, both historically and in terms of contemporary professional practice. Surveys the impacts of planning regulations from Philip of Spain's "Laws of the Indies" at the beginning of American colonization through the development of English common law property rights, their extension to America and the development of zoning and planning legislation during the 20th century. Special attention is paid to current applications of form-based zoning codes in Britain and America and their implications for urban design and the patterns of settlement.

ARCX 5204/5205. Urban Design in Global Perspective. (3) Cross-listed as MUDD 6215. Examines the critical discourse in modern urban design and investigates complex nature of the practice by examining precedents in modern and contemporary time. Essential theories and principles of urban design will be discussed through analyses of projects in the United States and abroad. They will expose students to a series of important issues in urban design, such as downtown revitalization, waterfront redevelopment, high density residence, remedy of edge cities, and urban park. These case studies illuminate the impact of political systems, social conditions, and local cultures on urban forms. A relationship will be established between these

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LARGE-SCALE URBAN PROJECTS AND THE EVOLUTION OF CITIES SINCE THE SECOND HALF OF THE 20TH CENTURY.

ARCH 5204/5205. The Changing Urban Landscape: The Development of Uptown Charlotte, 1875- Present. (3) Cross-listed as MUDD 6215. The design and evolution of cities is a reflection of evolving attitudes about gender, race, crime and socioeconomic conditions, and governmental interventions. Charlotte's center city is a unique result of those many influences and serves as an excellent laboratory for gaining an understanding of those attitudes. Specific topics will include the development of First Ward as a mixed income neighborhood, the demise of the Brooklyn neighborhood in Second Ward, professional sports in Uptown Charlotte, the development of Fourth Ward, the civic patron/ corporate factor, transportation in Uptown Charlotte and finally, the 2010 and 2020 Plans for Uptown.

ARCH 5204/5205. Offices in the Sky: The History of the Skyscraper from 1870 to the Present. (3) This seminar explores the history of the skyscraper as a unique building type in a way that moves beyond equating "building type" and "formal typology" to examine how social, cultural, political, economic, and technical issues form critical aspects of the definition of "type." This seminar also examines the transition/translation of the skyscraper as a uniquely American building type to a global or international building type.

ARCH 5204/5205. Architecture and National Identity. (3) Explores this reciprocal relationship between national identities and the built environment through a range of different architectural and urban scales and typologies. The focus is on how political and national identities are constructed and reinforced through architectural and urban form as well as how the built environment has been shaped by those identities.

ARCH 5204/5205. Layered Berlin. (3) Explores the mutual relationship between political history, broader cultural trends, and the architecture and spaces of the city of Berlin. Through the class, students will study how in the past two centuries, Berlin has served as the capital of a rapid succession of dramatically different political entities. The course will examine the ways in which Berlin has borne witness to these changes and the city's built and cultural history has reflected and responded to each period.

ARCH 5204/5205. From Rusczyk to Zapriber: Mapping the Mid-Century. (3) Examines pivotal cultural and architectural developments within the histories of the mid-20th century. From the origins of WWII to the events of Spring 1968, the course charts both the primary political, cultural, and architectural

arcs of the period, and examine architectural case studies within these broader contexts.

ARCH 5204/5205. HISTORY OF URBAN FORM BEFORE THE 20TH CENTURY. (3) Cross-listed as MUDD 6215. PROVIDES AN OVERVIEW OF THE HISTORY OF URBAN FORM, DESIGN AND PLANNING FROM THE EARLIEST CITIES THROUGH THE EARLY TWENTIETH CENTURY. ITS FOCUS IS ON THE KEY IDEAS, DESIGNERS, PLANNERS AND URBAN PROJECTS AS WELL AS THE MATERIAL, ENVIRONMENTAL, SOCIAL, CULTURAL, POLITICAL, ECONOMIC, RELIGIOUS, THEORETICAL AND OTHER FORCES THAT HAVE SHAPED URBAN FORM.

ARCH 5204/5205. URBAN DESIGN OF CAPITAL CITIES. (3) Cross-listed as MUDD 6215. THIS SEMINAR EXAMINES THE RELATIONSHIP BETWEEN POLITICS, CHANGING STATE CONTEXTS, NATIONAL IDENTITIES, AND THE URBAN DESIGN OF CAPITAL CITIES. IT EXPLORES THE CONNECTIONS BETWEEN URBAN AND NATIONAL IDENTITIES AND BETWEEN A COUNTRY'S VALUES AND/OR SYSTEM OF GOVERNMENT AND PLANNING AND URBAN DESIGN DECISIONS.

General Architectural Electives

Architectural Elective courses offer study of a wide range of topical areas in architecture. Students can choose from among many courses, each of which addresses a different topic. These courses complement the core courses and studios and allow students to pursue their specific interests. These courses do not count towards completion of Concentration requirements unless cross-listed. Cross-listed courses are marked with an asterisk. (See current School of Architecture Prospectus for a complete listing of courses.)

ARCH 6050. Trend or Trick: Sustainability in Architecture. (3) THIS COURSE IS STRUCTURED AS AN OVERVIEW OF SUSTAINABLE DESIGN AND HOW THIS SUBJECT IS DEFINED WITHIN THE PARAMETERS OF THE BUILT ENVIRONMENT. IT IS DESIGNED TO INTRODUCE STUDENTS TO A BROAD BASE OF CONCEPTS, PHILOSOPHIES, AND PRACTICES OF SUSTAINABLE DESIGN.

ARCH 6050. Objects and Analysis. (3) Prerequisite: ARCH 4050 (Furniture Making) or ARCH 4050 (Making Simple Tools). THIS COURSE IS AN EXAMINATION OF THE IDENTITY OF OBJECTS AND FURNITURE IN RELATION TO RITUAL AND SPACE. THROUGH COURSEWORK STUDENTS WILL DEVELOP A HISTORICAL GROUND AND ANALYTICAL METHODS THAT WILL EXTEND INTO THE MAKING OF AN OBJECT. THIS MAKING WILL INVOLVE THE EXERCISE OF FINE CRAFTSMANSHIP IN A COMBINATION OF MEDIA.

ARCH 6050. Architecture/Culture/Discourse. (3)

THIS COURSE TRACES IDEOLOGICAL MOVEMENTS THAT HAVE INFORMED THE DISCIPLINE OF ARCHITECTURE BOTH PAST AND PRESENT. IN THIS SENSE, THIS COURSE PROVIDES A HISTORICAL Vantage POINT FROM WHICH TO VIEW HOW THEORIES OF ARCHITECTURE AND THE CITY DEVELOP AS INTER-RELATED

IDEAS, PRACTICES, AND TRADITIONS THROUGH THE PERSISTENCE OF SPECIFIC THEMES OVER TIME AND SPACE.

ARCX 6050. Methods and Meaning. (3) THIS COURSE EXAMINES A RANGE OF ARCHITECTURAL IDEAS WITH AN EMPHASIS ON DEVELOPMENTS FROM THE LATE 1960S TO THE PRESENT. ATTENTION WILL BE PAID TO THE INTERRELATION BETWEEN THEORY AND PRACTICE AND HOW CLUSTERS OF IDEAS FORMULATE THE DISCOURSE AS TRENDS BOTH MAINSTREAM AND MARGINAL. EMPHASIS WILL BE PLACED ON TEXTS AND THEIR INTERPRETATION ALONGSIDE EXAMPLES OF WORK INSPIRED BY THE SAME. THIS SURVEY MEANS TO FORMULATE A BROAD UNDERSTANDING OF CONTEMPORARY ARCHITECTURAL CULTURE.

ARCX 6050. Watercolor & Representation I. (3) THE PRACTICE OF WATERCOLOR CAN MAKE MANY DESIGN NOTIONS CLEAR FOR THE MAKER AS WELL AS THE OBSERVER. INTRODUCES BASIC VISUAL STRATEGIES UTILIZING TACTICS AND TECHNIQUES OF WATERCOLOR. THE CLASS FOCUS IS ON DEVELOPING A PRACTICAL VOCABULARY FOR SKILLFUL REPRESENTATION AND EMPHASIZES A WORKING KNOWLEDGE OF WATERCOLOR PAINTING AND ITS APPLICATION AT ALL PHASES OF DESIGN WORK. STUDENTS WILL DEVELOP SKILLS PRESENTING OBJECTS IN SPACE USING WATERCOLOR AND PENCIL.

ARCX 6050. Advanced Watercolor Representation. (3) THIS CLASS EMPHASIZES THE DEVELOPMENT OF WORKING METHODS FOR THOUGHTFUL REPRESENTATION USING WATERCOLOR FOR ALL PHASES OF DESIGN WORK. ISSUES AND SKILLS ADDRESSED INCLUDE ANALYSIS; REPRESENTATION OF INTERIOR AND EXTERIOR SPACES AND EVENTS; REPRESENTATION OF URBAN CONTEXT AND SITE; AND PRESENTATION OF ORGANIZATIONAL STRATEGIES.

ARCX 6050. Furniture Making. (3) THIS IS A LABORATORY COURSE IN THE FUNDAMENTALS OF DESIGNING AND BUILDING OF FURNITURE, PRIMARILY IN WOOD. INCLUDED ARE THE BASICS OF MATERIALS SELECTION, MACHINE AND HAND TOOL USE, JOINERY, AND FINISHING. THE CRAFTING OF FURNITURE OF STUDENT'S DESIGN IS AN INTEGRAL PART OF THE COURSE.

ARCX 6890. Directed Independent Study. (1-3)

Prerequisite: PERMISSION OF THE GRADUATE COORDINATOR AND THE GRADUATE FACULTY MEMBER ADVISING THE STUDY. THIS COURSE ENABLES DIRECTED INDIVIDUAL STUDY AND IN-DEPTH ANALYSIS OF A SPECIAL AREA RELATED TO THE INTERESTS OF THE STUDENT AND THE EXPERTISE OF THE ADVISING FACULTY MEMBER. MAY COUNT TOWARDS COMPLETION OF CONCENTRATION REQUIREMENTS IF APPROPRIATE. MAY BE REPEATED FOR CREDIT AS TOPICS CHANGE.

ARCX 7120. Graduate Summer International Study. (3) CROSS-LISTED AS MUDD 7120. **Prerequisite:** COMPLETION OF FIRST YEAR OF THE MARCX II PROGRAM (OR EQUAL). ARCX 7120 IS AN OPTIONAL INTERNATIONAL STUDY COURSE THAT MARCX II STUDENTS MAY ENGAGE IN THE SUMMER PRIOR TO THEIR FINAL YEAR. THE PREMISE OF THIS

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COURSE IS TO ALLOW GRADUATE STUDENTS TO ENGAGE A SUMMER EXPERIENCE ABROAD TO SUPPORT THEIR GROWING KNOWLEDGE OF ARCHITECTURE AND ARCHITECTURAL DISCOURSE. THIS EXPERIENCE IS INTENDED TO INFORM AND MOTIVATE POSSIBLE INTERESTS THAT THE STUDENTS MIGHT PURSUE IN THEIR FINAL YEAR OF STUDY. *(Summer)*

ARCH 7950. Graduate Summer Research Study. (3)

Prerequisite: completion of first year of the MARCH II Program (or equal). ARCH 7950 is an optional opportunity for research that MARCH II students may engage in the summer prior to their final year. The premise of this course is to allow graduate students to engage research activities to support their growing knowledge of architecture and architectural discourse. This experience is intended to inform and motivate possible interests that the students might pursue in their final year of study. *(Summer)*

Studio Courses

MUDD 5101. Design Studio: Basics. (3) Cross-listed as ARCH 6100. Prerequisite: B.A., B.S. or equivalent college degree. This introductory graduate course in architecture is intended for students newly admitted to the School of Architecture's 3+ year professional program. This five-week, intensive studio-based course includes an introduction to freehand drawing, 2-D composition, 3-D modeling, and visual theory. In addition, the course offers an introduction to a variety of related topics (history, urbanism, structure, lighting, materials, etc.) that serve as critical departure points for understanding and making architectural and urban projects. *(Summer)*

MUDD 6101. Fundamentals of Urban Design Studio. (6) This introductory urban design studio focuses on fundamental concepts as well as the acquisition and practice of a wide range of technical and graphic skills and media. It is intended to serve as an arena to explore and test issues focused around the making of sustainable public infrastructure, spatial definition by buildings, and the particular dynamics of civic and social spaces. *(Fall)*

MUDD 6102. Urban Open Space and Infrastructure Design Studio. (6) Prerequisite: MUDD 6101. This intermediate design studio focuses on the sustainable development of neighborhoods, districts, sites and urban open spaces, exploring design process issues as well as the continued acquisition and practice of a variety of technical and graphic skills. *(Spring)*

COURSES in URBAN DESIGN (MUDD)

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MUDD 7101. Advanced Vertical Urbanism / Global Urban Design Studio. (6) Prerequisite: MUDD 6102. This advanced design studio focuses on site-specific projects in countries outside the USA and emphasizes methods of research and design as well as technological and systemic issues of sustainability in dense and vertical urban environments. This course pursues a directed research and design agenda that varies according to faculty interest, expertise and/or project requirements. In addition, this course may build upon the resources of the Design + Society Research Center (D+SRC) at the School of Architecture. *(Summer-First and Second Sessions)*

MUDD 7134. Independent Capstone Research Project (6) Prerequisite: MUDD 6102. This is an alternative capstone course to MUDD 7101 for students in exceptional circumstances only. This advanced project offers support and structure for students undertaking their capstone experience as individualized research and/or design work within the parameters of the M.U.D program but outside the normative full-time sequence of studios or as part of a dual degree option with an individually tailored course plan. An individually defined urban research and/or design project will be taken under the direction of a M.U.D faculty member and other advisors as appropriate. *(Fall, Spring)*

Required Seminar Courses

MUDD 5601. Community Planning Workshop. (3)

Cross-listed as ARCH 6050. Serves to acquaint students with contemporary theory and practice in planning and urban design; to give students experience in applying planning and urban design theory and methods to actual problems; to provide students with experience in compiling and analyzing community scale data, working with citizens, professional planners and designers, and elected officials, to provide students with experience in the preparation of oral reports and technical documents; and to examine what it means for the planner and urban designer to demonstrate ethical responsibility to the public interest, to clients and employers, and to colleagues and oneself. *(Fall)*

MUDD 5602. Planning, Law, and Urban Design. (3)

Examines the impact of planning law on the urban form of cities, both historically and in

TERMS OF CONTEMPORARY PROFESSIONAL PRACTICE. IT SURVEYS THE IMPACTS OF PLANNING REGULATIONS FROM PHILIP OF SPAIN'S "LAWS OF THE INDIES" AT THE BEGINNING OF AMERICAN COLONIZATION THROUGH THE DEVELOPMENT OF ENGLISH COMMON LAW PROPERTY RIGHTS, THEIR EXTENSION TO AMERICA AND THE DEVELOPMENT OF ZONING AND PLANNING LEGISLATION DURING THE 20TH CENTURY. SPECIAL ATTENTION IS PAID TO CURRENT APPLICATIONS OF FORM-BASED ZONING CODES IN BRITAIN AND AMERICA AND THEIR IMPLICATIONS

FOR URBAN DESIGN AND THE PATTERNS OF SETTLEMENT.

(SPRING)

Elective Seminar Courses

MUDD 6050. Topics in Urban Design Elective. (3)

STUDY OF TOPICAL AREAS OF URBANISM AND URBAN DESIGN. MAY BE REPEATED FOR CREDIT AS TOPICS CHANGE. MAY INCLUDE COURSES FROM THE M.A. IN GEOGRAPHY (COMMUNITY PLANNING TRACK) BY PERMISSION OF THE DIRECTOR OF THE M.U.D PROGRAM. *(FALL, SPRING, SUMMER)*

MUDD 6050. Urban Form, Context and Economics. (3) Cross-listed as ARCX 6050. URBAN DEVELOPMENT AND REDEVELOPMENT CAN BE CONSIDERED TYPOLOGICALLY IN TWO MAIN CATEGORIES: LARGE "CATALYST" PROJECTS (PERFORMING ARTS CENTERS, ENTERTAINMENT COMPLEXES, AND OTHER LARGE, MIXED-USE PROJECTS); AND SMALLER, INCREMENTAL INTERVENTIONS IN THE URBAN SETTING THAT LACK GLAMOUR BUT CONTRIBUTE MUCH NEEDED DEPTH AND COMPLEXITY TO THE URBAN ENVIRONMENT. THIS COURSE FOCUSES ON HOW AND WHY URBAN PROJECTS ARE FORMULATED BY PUBLIC AND PRIVATE INTERESTS. IT ENGAGES THE CONCEPTUAL ORIGINS, DESIGN DEVELOPMENT AND PRODUCTION OF URBAN PROJECTS LARGE AND SMALL, IN AN EFFORT TO UNDERSTAND THE RELATIONSHIP BETWEEN DEVELOPMENT ECONOMICS, SOCIAL FACTORS, PROGRAM DEVELOPMENT, DESIGN CONCEPTS AND URBAN CONTEXTS.

MUDD 6050. Shaping the American City. (3) Cross-listed as ARCX 6050. THROUGHOUT THE TWENTIETH CENTURY, URBAN POLITICS, POLICIES, AND PROGRAMS HAVE SHAPED THE SPACE OF THE AMERICAN CITY, INCLUDING THE ARCHITECTURE OF URBAN SETTLEMENT PATTERNS, PUBLIC SPACE, TRANSPORTATION, AND HOUSING. AN UNDERSTANDING OF THE POLITICAL / SOCIAL / HISTORICAL / SPATIAL FOUNDATIONS OF URBAN POLICIES IN RELATION TO THE AMERICAN CITY IS CRITICAL IN UNDERSTANDING THE DEVELOPMENT OF OUR CURRENT URBAN PATTERNS, THE SPATIAL DISTRIBUTION OF PEOPLE AND RESOURCES, AND THE FUTURE PRODUCTION OF SUSTAINABLE DESIGN IN URBAN SETTINGS.

MUDD 6050. Dilemmas of Modern City Planning. (3) Cross-listed as ARCX 6050. THE PATTERNS OF MAN'S SETTLEMENT ARE PREDICATED UPON PARTICULAR PARADIGMS OF URBANISM, AS WELL AS MORE PRAGMATIC CONCERNS OF POLITICS, ECONOMICS AND GEOGRAPHY. AN EXAMINATION OF THESE INFLUENCES AND THEIR INTERCONNECTIONS PROVIDES THE NECESSARY THEORETICAL AND HISTORICAL BACKGROUND FROM WHICH TO PROPOSE SUSTAINABLE IMPROVEMENTS TO THE CONTEMPORARY LANDSCAPES OF OUR CITIES.

MUDD 6050. STRATEGIES FOR THE PUBLIC REALM. (3)

**CROSS-LISTED AS ARCH 6050. CONTEMPORARY THEORIES AND PRACTICES IN URBAN DESIGN
UNDERScore THE CONNECTION BETWEEN THE CITIZEN AND THE PUBLIC REALM**

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and between the physical and social attributes of the city. Sustainable urban design is not so much an aesthetic as it is a strategy for change, transformation, dialogue, and interaction. Urban design is the link between architecture and urbanism, tying together the city's disparate parts and celebrating the complexity and connectedness of space.

MUDD 6050. Public Space in Cities. (3) Cross-listed as ARCH 6050. The public realm has historically constituted a set of real places possessing physical form and has been the setting for civic and communal life. This traditional role of public space is brought into question by the advent of cyberspace, with unknown consequences for city form. This course focuses on the origins and transformations of public space within American culture, and to understand principles of urban design as they have related to the creation of public space during different historical periods. Course material will also focus on the historical connection between the public realm and democratic principles, and the threats to the continued existence of truly sustainable public space in American cities.

MUDD 6050. The Changing Urban Landscape: The Development of Uptown Charlotte, 1875-Present. (3) Cross-listed as ARCH 6050. The design and evolution of cities is a reflection of evolving attitudes about gender, race, crime and socioeconomic conditions as well as governmental interventions and the efforts of private enterprise. Charlotte's Center City is a unique result of those many influences and serves as an excellent laboratory for gaining an understanding of the forces that shape the making of the places we live. Specific topics will include the development of First Ward from a public housing ghetto to a mixed income neighborhood, the demise of the Brooklyn neighborhood in Second Ward, professional sports in Uptown Charlotte, the development of Fourth Ward, the civic patron/corporate factor, transportation in Uptown Charlotte and finally, the 2010 and 2020 plans for Uptown.

MUDD 6050. Real Estate Development Studies: Introduction to Real Estate Development. (3) Cross-listed as ARCH 6050. The production of buildings requires both architectural and economic skill. Likewise, the production of our landscape is both a private and public endeavor. To balance these skills and endeavors requires an understanding of basic facts. This course focuses on an introduction to the real estate development process. Course material, lectures and case studies focus on the identification and evaluation of critical assumptions and issues related to market and site feasibility, financial feasibility, planning, acquisition, construction, and operation of economically viable commercial real estate projects.

MUDD 6100. Directed Independent Study. (1-3)

Prerequisites: PERMISSION OF THE M.U.D PROGRAM DIRECTOR AND THE GRADUATE FACULTY MEMBER ADVISING THE STUDY. THIS COURSE ENABLES DIRECTED INDIVIDUAL STUDY AND IN-DEPTH ANALYSIS OF A SPECIAL AREA RELATED TO THE INTERESTS OF THE STUDENT AND THE EXPERTISE OF THE ADVISING FACULTY MEMBER. MAY GENERALLY BE TAKEN ONCE FOR CREDIT TOWARDS DEGREE. (*FALL, SPRING, SUMMER*)

MUDD 6204. TOPICS IN URBAN HISTORY AND THEORY Elective. (3) STUDY OF TOPICAL AREAS OF URBAN HISTORY AND THEORY. MAY BE REPEATED FOR CREDIT AS TOPICS CHANGE. (*SPRING, SUMMER*)

MUDD 6205. TOPICS IN URBAN HISTORY AND THEORY Elective. (3) STUDY OF TOPICAL AREAS OF URBAN HISTORY AND THEORY. MAY BE REPEATED FOR CREDIT AS TOPICS CHANGE. (*FALL*)

Other Courses

MUDD 7120. Graduate Summer International Study. (3-6) CROSS-LISTED AS ARCH 7120. **Prerequisite:** APPROVAL OF THE M.U.D PROGRAM DIRECTOR. THE PREMISE OF THIS COURSE IS TO ALLOW GRADUATE STUDENTS TO ENGAGE A SUMMER EXPERIENCE ABROAD TO SUPPORT THEIR GROWING KNOWLEDGE OF ARCHITECTURE AND ARCHITECTURAL DISCOURSE. THIS EXPERIENCE IS INTENDED TO INFORM AND MOTIVATE POSSIBLE INTERESTS THAT THE STUDENTS MIGHT PURSUE IN FURTHER STUDY. (*SUMMER*)

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ARTS EDUCATION

- **GRADUATE CERTIFICATE IN TEACHING: K-12 ART**
- **GRADUATE CERTIFICATE IN TEACHING: K-12 DANCE**
- **GRADUATE CERTIFICATE IN TEACHING: K-12 THEATRE** FOR DETAILS ON THE GRADUATE CERTIFICATE IN TEACHING FOR K-12 ART, DANCE, OR THEATRE, PLEASE SEE THE COLLEGE OF EDUCATION SECTION IN THIS *CATALOG*.

MUSIC

- **GRADUATE CERTIFICATE IN VIOLIN**
- **GRADUATE CERTIFICATE IN VOCAL PEDAGOGY** DEPARTMENT OF MUSIC 340 ROBINSON HALL 704-687-0262 music.umcc.edu

GRADUATE CERTIFICATE PROGRAM COORDINATOR ROYCE LUMPKIN,

PROFESSOR AND DEPARTMENT CHAIR **GRADUATE FACULTY** ALISSA DEETER,
ASSOCIATE PROFESSOR JAMES A. GRYMES, ASSOCIATE PROFESSOR RANDAL
HALDEMAN, ASSOCIATE PROFESSOR DAVID RUSSELL, PROFESSOR
ASSOCIATE PROFESSOR JENNIFER WHITAKER, ASSISTANT PROFESSOR

Fred Spano,

GRADUATE CERTIFICATE IN VIOLIN

THE GRADUATE CERTIFICATE IN VIOLIN PROVIDES STUDENTS WITH INTENSIVE TRAINING IN PERFORMANCE, PEDAGOGY, AND REPERTOIRE BEYOND THE UNDERGRADUATE LEVEL. THE CURRICULUM CONSISTS OF 15 HOURS OF GRADUATE-LEVEL WORK THAT CAN BE COMPLETED OVER THE COURSE OF ONE ACADEMIC YEAR, INCLUDING TWO SEMESTERS OF ENSEMBLES AND SECTIONALS, TWO SEMESTERS FOR PRIVATE LESSONS AND MASTERCLASSES, AND COURSES IN MUSIC THEORY, PEDAGOGY, AND REPERTOIRE.

ADMISSIONS REQUIREMENTS

- a) A BACHELOR'S DEGREE IN MUSIC FROM AN ACCREDITED UNIVERSITY OR CONSERVATORY

b) Online application to Graduate Admissions, accompanied by the application fee in effect

c) GPA required for entry into a master's degree program

d) Official transcripts

- e) A formal audition for acceptance as a

baccalaureate student

f) Placement tests in music theory

piano. Any deficiencies revealed in the placement tests may be remedied through coursework at UNC Charlotte or any other accredited institution.

Program Requirements

Students must take all of the courses below to complete the Graduate Certificate in Violin. All courses must be taken at UNC Charlotte and must be completed within four years.

MUSC 5049 Violin Literature (3)

MUSC 5149 Violin

and Analysis (3)

MUSC 6160 Chamber Orchestra (1) - two semesters MUPF 6160L

Chamber Orchestra Sectional

Rehearsals (0) - two semesters

- MUPF 6249 Applied Music: Violin (0)

semesters

- MUPF 6040L Violin Masterclass (0)

The Graduate Certificate in Vocal Pedagogy is designed to provide the advanced student with a concentrated program focusing on the methodology and practice of teaching voice. The curriculum consists of 17 hours of graduate level work that can be completed in two semesters over one academic year. The course of study includes ensembles, private lessons, and masterclasses, as well as applied teaching and a graduate pedagogy sequence culminating in a directed project.

Admissions Requirements

a) A bachelor's degree in music from an accredited university or conservatory

b) Online application to Graduate Admissions, accompanied by the application fee in effect

c) GPA required for entry into a master's degree program

d) Official transcripts

e) Formal audition for acceptance as a post-baccalaureate student

GRADUATE CERTIFICATE in VOCAL PEDAGOGY

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- f) Placement tests in music theory, ear training, and piano. Any deficiencies revealed in the placement tests may be remedied through coursework at UNC Charlotte or any other accredited institution.
- g) A diagnostic vocal pedagogy exam will be administered prior to placement into the program.

Program Requirements

Students must take all of the courses below to complete the Graduate Certificate in Vocal Pedagogy. All courses must be taken at UNC Charlotte and must be completed within four years.

MUSC 5137 Vocal Pedagogy (3)
Voice Teaching Internship (1) – two

M USC 5153 Advanc

semesters
Masterclass (0) – two semesters MUPF 6120 Graduate Choral Ensemble (1) – two

semesters M 6120L Choral Ensemble Sectionals (0) – two

semesters M USC 6600 Concluding Seminar (3)

Music Education (MUE)

MUED 5140. Choral Methods. (2) Prerequisite: Admission to the MAEd or Graduate Certificate in Teaching Program. Corequisite: MUED 5140L. Rehearsal techniques, repertoire, and administration of school choral programs. A minimum of ten hours

of field work required. Three contact hours. (Fall)

MUED 5140L. Choral Methods Lab (1). Corequisite: MUED 5140. Clinical application of rehearsal methods with various choral ensembles. A minimum of 10 hours in the field

are required.

MUED 5151. COMPUTER SKILLS FOR THE MUSIC EDUCATOR. (3) Prerequisites: Admission to MAT or Graduate Certificate in Teaching Program, and permission of the instructor. The study of contemporary MIDI and computer related technologies available to the music educator. Two contact hours. *(Fall)*

MUED 5194. Instrumental Methods. (2) Prerequisites: Admission to MAT or Graduate Certificate in Teaching Program, and permission of the instructor. Corequisite: MUED 5194L. Rehearsal techniques.

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REPERTOIRE, TEACHING STRATEGIES, METHODS, AND MATERIALS OF TEACHING AND ADMINISTERING AN INSTRUMENTAL MUSIC PROGRAM IN THE PUBLIC SCHOOL. Two contact hours. *(Fall)*

MUED 5194L. Instrumental Methods Lab. (1)

Prerequisites: Admission to MAT or Graduate Certificate in Teaching Program, and permission of the instructor. Corequisite: MUED 5194. CLINICAL APPLICATION OF REHEARSAL METHODS WITH COLLEGIATE AND PUBLIC SCHOOL INSTRUMENTAL ENSEMBLES. A minimum of 10 hours in the field are required.

Music Performance (MUPF)

MUPF 6120. Graduate Choral Ensemble. (1)

Prerequisite: Audition. Corequisite: MUPF 6120L. A mixed chorus that performs music of many styles from the Baroque period to the present. 3 contact hours. May be repeated for credit. *(Fall, Spring)*

MUPF 6120L. Graduate Choral Ensemble Sectional Rehearsals. (0) Corequisite: MUPF 6120. Sectional rehearsals for MUPF 6120. May be repeated. *(Fall, Spring)*

MUPF 6160. Chamber Orchestra. (1) Prerequisite: audition. Corequisite: MUPF 6160L An elite ensemble that plays advanced string orchestra works and collaborates with the choral and opera programs. May be repeated for credit. *(Fall, Spring)*

MUPF 6160L. Chamber Orchestra Sectional Rehearsals. (0) Corequisite: MUPF 6160. Section rehearsals for MUPF 6160. Graded on a Pass/Unsatisfactory basis. May be repeated for credit. *(Fall, Spring)*

MUPF 6249. Applied Music: Violin. (2) Prerequisite: Admission to the Graduate Certificate in Violin Program. Corequisites: MUPF 6160 and MUPF 6249L. Private

INSTRUCTION; ONE HOUR LESSON PER WEEK. MINIMUM OF FOUR HOURS OF PRACTICE PER DAY. MAY BE REPEATED FOR CREDIT. (FALL, SPRING)

MUPF 6249L. VIOLIN MASTERCLASS. (0) WEEKLY MASTER-CLASSES FOR MUPF 6249. GRADED ON A PASS/UNSATISFACTORY BASIS. (FALL, SPRING)

MUPF 6253. APPLIED MUSIC: VOICE. (2) PREREQUISITE: ADMISSION TO THE GRADUATE CERTIFICATE IN VOCAL PEDAGOGY PROGRAM. COREQUISITES: MUPF 6253L AND APPROVED PRINCIPLE ENSEMBLE. CONSISTS OF PRIVATE INSTRUCTION, A ONE-HOUR LESSON PER WEEK LEADING TO A FORMAL JURY AT THE END OF THE SEMESTER. MAY BE REPEATED FOR CREDIT. (FALL, SPRING)

**COURSES in MUSIC, MUSIC EDUCATION, AND MUSIC
PERFORMANCE**

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MUPF 6253L. Voice Masterclass. (0) COREQUISITE: MUPF 6253. WEEKLY masterclasses FOR MUPF 6253. May be repeated. (Fall, Spring)

Music (MUSC)

MUSC 5001. Topics in Music. (1-6) Prerequisites: Admission to MAI or MME and permission of the instructor. SPECIAL TOPICS in music; may be repeated for credit. SPECIFIC TOPICS COURSES WILL BE FIELD-TESTED AND MODIFIED TO BECOME PERMANENT COURSES. (Fall, Spring)

MUSC 5049. Violin Literature. (3) Prerequisites: admission to the Graduate Certificate in Violin Program and MUSC 5230. An analysis course focusing on the major repertoire for the violin. Methodologies will include both historical and structural analysis of violin compositions from the 17th century through the present. (Spring)

MUSC 5137. Vocal Pedagogy. (3) Prerequisite: Admission to the Graduate Certificate in Vocal Pedagogy Program. A methodology course designed to examine the anatomical, physiological, and psychological mechanics of singing. Students will learn how the knowledge of these mechanics can be utilized in applied vocal instruction. (Fall)

MUSC 5149. Violin Pedagogy. (3) Prerequisite: admission to the Graduate Certificate in Violin Program. Corequisites: MUPF 6249 and MUPF 6249L. A methodology course outlining the teaching techniques, materials, and related literature necessary for offering private instruction on the violin. (Fall)

MUSC 5153. Advanced Vocal Pedagogy. (3)

Prerequisite: MUSC 5137. Advanced research in singing. Topics include advanced anatomy and physiology, singer health, complementary modalities, and practical studio application. (Spring)

MUSC 5170. Graduate Survey of Music History. (3)

A SURVEY OF THE MATERIALS OF WESTERN MUSIC AND AN OVERVIEW OF THE HISTORICAL DEVELOPMENT AND RELATIONSHIPS OF MUSICAL STYLES.

MUSC 5230. Form and Analysis. (3) Prerequisite: admission to the Graduate Certificate in Violin Program. The impact of form and process on the analysis and interpretation of music. A detailed examination of common practice forms such as Binary, Ternary, Rondo, Theme and Variation, and Sonata form. *(Fall)*

MUSC 6453. Voice Teaching Internship. (1)

Prerequisite: Admission to the Graduate Certificate in Vocal Pedagogy Program. Applied teaching with a select number of students, both male and female, and

a weekly seminar to review and discuss issues and solutions in the studio. The student will develop and document a systematic teaching methodology, learn how to select appropriate repertoire based on singer ability, and apply appropriate protocols for technical issues. May be repeated for credit *(Fall, Spring)*

MUSC 6600. Concluding Seminar. (3) Prerequisite: Admission to the Graduate Certificate in Vocal Pedagogy Program. Concluding Seminar consists of a Directed Learning Project, enabling the student to focus on his or her area of pedagogical interest. Students are mentored through the project by a supervising instructor. Concluding Seminar is intended to provide a learning experience for students to gain additional knowledge that will reinforce their Vocal Pedagogy Program and support the student's career goals.

MUSC 6601. Graduate Seminar in Music History. (3)

Prerequisite: MUSC 5170 or permission of the department. Individual or group investigation of a selected style period, composer, genre, or topic of current interest in music history. Provides an introduction to research methods, documentary sources, and critical analysis that will culminate in a formal research paper worthy of scholarly presentation and/or publication. *(Spring)*

