

Structure of Graduate Program:

The **Plan A Program (30 credit minimum)** is a traditional thesis plan where 10 credits of thesis are required on the program of study. A 4 credit research semester and a 6 credit design semester comprise the 10 credit requirement. All thesis credits are taken pass/fail and a thesis defense is required. A student may continue to enroll in thesis credits on a pass/fail basis for an unlimited number of semesters and will continue to receive credits and a passing grade as long as satisfactory progress is being made toward completion. Both the student's first and second advisors must be full-time faculty members of SOA and at least one must be tenured or tenure track. The "closed door" defense of a thesis and the comprehensive examination require a minimum committee of three people and must take place at least 14 business days prior to the end of the semester. Within a Plan A program, the comprehensive exam will be combined with the thesis defense. The comprehensive exam must pose questions from the body of knowledge of their program of study and curriculum. As per university Department of Graduate Education policy students are allowed two attempts to successfully defend their thesis and pass the comprehensive examination. A failure on a second attempt results in permanent dismissal from the graduate program. It is anticipated that the Plan A program can be completed in two semesters, but will often take three or more semesters to complete.

In addition to the 10 credit thesis students will enroll in the Advanced Architectural Studio. The nature/topic of this 6 credit studio varies from semester to semester and is frequently taught by invited guests from both the academic and professional worlds. In any given semester there may be a variety of Advanced Architectural Studios offered.

The balance of the minimum 31 credit requirement is comprised of graduate electives. Like the Advanced Architectural Studios in any given semester a variety of graduate level electives are offered.

Plan A Students:

1. Plan A thesis students would be required to write a substantive proposal and find two full-time faculty members who share expertise in the area of research outlined in the proposal. A third faculty member will be assigned to the committee by the Graduate Program Director.
2. Thesis proposals will be due on the last day to add classes online of the Fall 2009 semester. (September 4th)
3. Reviews with Advisors will include three scheduled reviews with full committee. These three reviews will be scheduled and coordinated by the thesis student. All three reviews will occur prior to the Closed Door Thesis Defense.
4. Closed Door Thesis Defense would occur at least 14 days prior to end of semester.
5. Full committee of three will sit on Thesis Defense with the School Director and the Graduate Program Director acting as observers.
6. Thesis Defense will be graded Pass/Fail. A minimum of two votes will be required for a Pass with concurrence from either one or both of the observers.
7. Open Thesis Presentation will occur during final exam week. In addition to committee members reviewers might include mentor advisory committee members, local practitioners, architecture faculty, etc. This review would be more celebratory in nature. At this time a student may receive a "Commend" with a majority concurrence of the final reviewers.
8. A three year limitation will be placed on thesis as it allows for a student to take one year off for financial reason. Also, students need to make satisfactory progress (as deemed by Committee) with their project.

Course Plan

Arch 551 6 credits } Option Studio to be taken in the 1st semester of the Graduate Program
Arch 552 3 credits } Students must take both courses for the Studio Option.

Arch 590 4 credits To be taken the 1st semester of the Masters program

Arch 590 6 credits To be taken the 2nd semester of the Masters program

Total of 19 credits required studio/thesis coursework

The remaining 11+ credit hours are electives chosen by the student. Graduate electives taken in the undergraduate program and petitioned for use towards a graduate degree can be used towards this balance of 11 hours of electives. Students are only allow to have 9 credits of 400 level course work as part of their graduate program

Total credits to graduate with a Plan A thesis is a minimum of 30.

The **Plan B Program (30 credit minimum)** will require a 6 credit studio course instead of a thesis and the program of study will still include 30 credits minimum. Students will enroll in the Advanced Building Studio with an instructor. The Advanced Building Studio is best described as a programmatically complex problem with an underlying agenda or theoretical component. The Advanced Building Studio should be considered as the most challenging structured studio experience that a student will undertake within the School of Architecture. Requirements will be rigorous and demanding beyond the expectations of those studios in the undergraduate program. The Advanced Building Studio is required for all graduate students opting for Plan B.

The instructor of record will be a senior faculty member responsible for establishing the course outline and all grading criteria. The projects and grades are not due until the end of finals week as with a typical graded course. Students are allowed two attempts to successfully pass the Advanced Building Studio with a grade of "B" or better. A failure on a second attempt results in permanent dismissal from the graduate program.

In addition to the 6 credit Advanced Building Studio students will enroll in an Advanced Architectural Option Studio. The nature/topic of this 6 credit studio varies from semester to semester and is frequently taught by invited guests from both the academic and professional worlds. In any given semester there may be a variety of Advanced Architectural Studios offered.

The balance of the minimum 30 credit requirement is comprised of graduate electives. Like the Advanced Architectural Studios in any given semester a variety of graduate level electives are offered.

Course Plan

Arch 551 6 credits } Option Studio to be taken in the 1st semester of the Graduate Program
Arch 552 3 credits } Students must take both courses for the Studio Option

Arch 558 6 credits To be taken the 2nd semester of the Masters program

Total of 15 credits required sudtio/thesis coursework

The remaining 15+ credit hours are electives chosen by the student. Graduate electives taken in the undergraduate program and petitioned for use towards a graduate degree can be used towards this balance of 15 hours of electives. Students are only allow to have 9 credits of 400 level course work as part of their graduate program

Total credits to graduate with a Plan B thesis is a minimum of 30.

Plan B Students:

1. Plan B students will take the 6 credit Advanced Building Studio in lieu of doing a Thesis.
2. Advanced Building Studio would be complex programmatically with some type of theoretical component or agenda.
3. Advanced Building Studio would be graded on 4 point scale.

Notes:

1. All graduate students will be required to receive a minimum grade of "B" (3.0) in any Option Studio. Failure to receive a "B" will result in the student needing to take another Option Studio.
2. All Plan B students would be required to receive a minimum grade of 3.0 in the Advanced Building Studio. Failure to receive a 3.0 will result in the student needing to take another Advanced Building Studio. A student may only have two opportunities to pass the Advanced Building Studio similar to a thesis student having only two opportunities to pass the closed door defense and the comprehensive examination.
3. Neither CDC nor Foreign studies are allowed to substitute for any graduate level studio. Remote studio may only be taken once in the program. It may be taken at the undergraduate level as ARCH 458/426 or it may be taken at the Graduate level as ARCH 551/552/553.

Fall 2009 Studios

Visiting Scholars ARCH 551-01 & ARCH 552-01 (students must enroll in both classes to complete the components for this studio) Peter Janke MWF 1:10-5

The 2009 Visiting Scholar studio will be taught by Peter Janke. Peter Jahnke is one of the founding directors of PIQUE architecture, an internationally published design studio dedicated to delivering inventive and meaningful art and architecture projects steeped in the specificity of the program, site and ambitions of their clients. Peter works with his two partners who operate out of offices separated by considerable distances - one in Seattle (Peter), one in Bend, Oregon and the other in Fort Benton, Montana. Though separated by miles, their work is facilitated through the ubiquitous and easily accessible various modes of communication this course will engage. www.piquearchitecture.com



STUDIO

Seattle Tent City-

All architecture is political. Whether intentional or accidental, the creation of all architecture is a political act. The impacts of architectural intervention are felt throughout the cultural realm and have significant political, social and economic implications. This studio looks to confront this notion through tackling the issue head-on by studying and making proposals to address Seattle's Tent City, an historically transient community for the homeless of Seattle. Key to the success of any architectural project is effective communication. The studio will engage all manner of digital and analog communication to effectively interrogate, investigate, propose and deliver considered, rich, and professional project solutions. This project will be delivered, in part, via webcast, instant message, email, YouTube video/animation post, SMS messages, etc. Students of architecture are well trained in final presentation making, but this project considers effective communication throughout the design process and encourages a clear understanding of the student's design intent made

richer through a process of considered, efficient, continuous communication through (re)presentation. Students will be required to format correspondence in an organized, orchestrated way to make their work immediately available, coherent, clear and concise. The studio will emphasize information gathering, careful indexing of information, rigorous interrogation of the program and place and the issues which affect them, and will culminate in the creation of a delightful, competent, considered architectural proposition.

Sustaining Aguilar ARCH 551-02 & ARCH 552-02 (students must enroll in both classes to complete the components for this studio)

John Brittingham WF 8-11:50

Studio

Sustaining Aguilar: an off the grid study of resource stewardship

This studio will study resource diversification, environmental planning, stewardship and the design of an off the grid compound in the high desert of New Mexico. The cultural storied landscape will inform the point of departure for the project and include local, mythical, and celestial awareness. The place is extraordinarily beautiful, fragile and tough and will demand sensitive and provocative interventions.

A field trip will include a visit to the Judd Foundation in Marfa, a visit to Antoine Predock's office, a day trip to Acoma (*city in the sky*), a day trip to Santa Fe to a Turrell *sky space* and several days on the site.

Please consult with John Brittingham for permission prior to registering.

Khumbu Climbing School ARCH 551-03 & ARCH 552-03 (students must enroll in both classes to complete the components for this studio)

Michael Everts WF 8-11:50

Studio

The KCS studio will be designing a +/- 2,000 sf building in Phortse, Nepal at the base of Mt. Everest. The studio will work closely with the Alex Lowe Charitable Foundation, who has asked the SoA to research and design the facility. Also, the studio will work closely with architect Bob Mechels, AIA of Dowling Sandholm Architects in Bozeman. The Foundation established the climbing school as an active way to "increase the safety margin of Nepali climbers and high altitude workers by encouraging responsible climbing practices in a supportive and community-based program." The climbing school is dedicated to the memory of climber great Alex Lowe. Alex is Jenni's late husband who died seven years ago in an avalanche on Mt. Everest. Currently, the climbing school does not have a dedicated facility to hold the hands-on classes taught by world-class climbers. In addition to indoor climbing walls, the facility will have a large auditorium for community gatherings. <http://www.alexlowe.org/kcs.shtml>. Students participating in this studio will have the opportunity to also participate in subsequent studios that will be involved in the construction of the project. Construction of the facility is scheduled to begin anytime from Spring semester 2009 to Fall Semester 2010.

Please consult with Mike Everts for permission prior to registering.

ARCH 551-04 & ARCH 552-04 (students must enroll in both classes to complete the components for this studio)

Ken VanDeWalle Architect AIA, WF 1:10-5

Bachelor of Arts in Architecture / Bachelor of Architecture, University of North Carolina in Charlotte
Licensed Architect, State of Montana <http://www.architectureindetail.com/>

The studio objective is to explore ideas in changing the volumetric qualities of a space.

A design by discovery approach will be utilized in both methodology and full-scale modeling in the materials lab. Students will investigate kinetic movement through connections and details: expressing the inherent structural characteristics of each material.

Three main topics will be examined:

1. Exploration of designs through focal point / counterpoint as a vehicle to generate a 3D object.
2. A study of mechanical and anthropomorphic / kinetic connections.
3. Object placement within a space and how it can modify / alter the interior spatial character.

The studio will result in the production of a final project for each student emphasizing the opportunities / impact to the volumetric characteristics of a defined space. Students should expect to spend a great amount of time exploring and building details in the materials lab. A field trip to a Seattle will be associated with this studio.

Required text:

The Nature and Art of Workmanship by David Pye

Wood Joints in Classical Japanese Architecture by Torashichi Sumiyoshi and Gengo Matsui

Inventions of Leonardo DaVinci

ARCH 551-05 & ARCH 552-05 (students must enroll in both classes to complete the components for this studio)

Currently unassigned STAFF WF 1:10-5.

We are currently working on a 5th studio assignment. As this time the project for this studio has not been decided. This studio should be assigned by August 1st.

Plan B Studio ARCH 558

Jack Smith WF 1:10-5

PROBLEM: RESEARCH AND DESIGN A MIXED USE BUILDING ON THE SITE OF WHAT WAS BOODLES RESTAURANT ON MAIN STREET, BOZEMAN.

This mixed use building will include a first floor of restaurant, entry lobby and service facilities. The floors above are to be office and studio space and the floors on the upper levels are to be residential. The building will be not more than 10 stories high. Research and a booklet of research and design strategies will be required as well as design definitive drawings and models.

Fall 2009 Electives

471-01 Directed Research and Creative activity 3 credits

Time and subject matter to be arranged with specific faculty members

Any student can choose to do their own independent study with any faculty member. If you wish to do an individual study you will need to complete a special 471 form with Rachael upon your return to school.

471-02 INTERIOR ARCHITECTURE 3 credits

Tuesday 10-11:50

Sherrill Halbe

This course is designed to explore the dynamics of interior space planning and design. The course will cover specific interior design needs by designing a commercial spa. The course addresses the complete design process, including building analysis, program analysis, space planning, color, material and finishes, lighting design, furniture, and accessories. Each component is evolved from conceptual to schematic design phase, from design development to the presentation phase.

Through analysis of human needs and building realities, the student will develop solutions that are both appropriate and creative. Projects will emphasize universal design principles, ADA compliance, and sustainability. Students will be involved with subject research and inspiration program writing; branding; use of color and materials; space planning of entire facility; code analysis and compliance; and conceptual and design development. Students will expand presentational skills to include interior plans, elevations, perspectives, axons, lighting design, custom millwork design and detail drawings, FF&E, color, materials, and finishes.

SPECIFIC OBJECTIVES

- To work in teams and understand and apply concepts, theories, vocabulary, and research that are germane to Interior Architecture.
- To increase ability to see, describe, analyze, and apply design solutions in Interior Architecture.
- To increase ability to present Interior Architectural ideas and findings orally, in writing, and schematically.
- To explore the dynamics of commercial interior design.

Arch 522-01 Historical Issues in Architecture

John Brittingham Time TBA –Yellowstone Charette

This course is Restricted Entry. Time will be arranged with students and faculty once students have enrolled. You must get John Brittingham's permission to take this course and once you do please let Rachael know and you will be registered.

ARCH 524-01 Design Competition 3 credit

Jack Smith R 10-1230

"Brick-Stainable" <http://www.brick-stainable.com/> [Potomac Valley Brick](#) presents **Brick-stainable: Re-Thinking Brick a design competition seeking integrative solutions for a building using clay masonry units (brick) as a primary material.** Current Green and Living building initiatives acknowledge the importance of integrated design solutions to achieve sustainability goals. This competition seeks to explore the potential of brick construction in the creation of an energy efficient building and challenges design teams to maximize the physical characteristics of this construction in the creation of integrated design solutions.

Arch 525-01 Special Design Topic Architectural Photography

Dan Wise T 8-9:50

Class registration is limited for this class. Registration will open on July 27th and is available on a first come first serve basis.

Arch 525-02 Special Design Topic- Type and Element

Barry Newton R 3:35-6

This course will use well-chosen Case Studies of individual buildings of the 20th Century. They will illustrate the division of architecture into Use, Form and Structural types [which follows the work of, for example Krier] and then analyze the phenomenological outcome by systematically examining the elements of Floor, Wall and Roof [in the manner of Pallasmaa and others]. This formulation should enable students to examine well-known works of architecture separately from the problems of polemic and historicism, and then bring these skills to bear on their own design efforts. The first half of the semester will mainly consist of selected readings and demonstrations of the methods by the instructor. In the second part of the semester the students will present their own research materials to the class.

Arch 525-03 Special Design Topic- Leadership Institute

Bruce Wrightsman and Lindsay Schack TBA

Time TBA once students have been selected and registration complete. **This course is Restricted Entry.** Please contact Bruce Wrightsman at bruce.wrightsman@montana.edu for information.

Arch 525-04 Special Design Topic- Push/Pull

David Fortin & Mike Everts R 8-9:50

The MSU Kenya Studios aims to cultivate an anthology of blurred visions that will both *push* and *pull* future low-income housing development in one of Africa's largest slums, Nairobi's Kibera. Working in conjunction with local architect Ronald Omyonga, we aim to address existing shortfalls and opportunities, through both *macro* and *micro* scale analyses, focusing on possibilities over assertions, induction over deduction, and flexible/blurred ideas over closed/determinate ones. *Push* is considered akin to Walter Benjamin's reading of Paul Klee's *Angelus Novus*. It is the accumulation of past and present debris; the piling up of existing obstacles in the path of Kibera's progress. It spurs discourse and informs action. *Pull* is the 'storm from paradise' that Benjamin labels progress and that we relate to Ernst Bloch's principle of hope. It is the manifestation of Kibera's hopes that will inspire our visions and pull its progress.

Distancing ourselves from implausibility, these visions will evolve into strategies for tangible implementation, capable of *deflecting* the existing hopes and aspirations of Kibera towards more fortuitous directions, as informed by emerging communication and fabrication technologies, sustainable materials and strategies, construction assemblies, and urban infrastructural opportunities. We approach the existing condition of the slum as an incidental outcome of a system that has allowed solipsistic-tending technologies, planning efforts, economic incentives, and social stratifications to converge.

Push/Pull will be composed of a design studio (ARCH 450) and an accompanying seminar (ARCH 525). Both the studio and the seminar will focus on *macro* and *micro*, temporally and spatially, where students will research the myriad forces and networks influencing the present conditions of Kibera through various analytical and mapping strategies. We will study existing and future economic forces, business models, food/water supply and distribution networks, and urban infrastructures, while carefully considering evolving human factors (desire, autonomy, community, privacy, ownership, safety, connectivity, diversity, etc.). Thus, essential to these studies is an astute awareness of the existing capacities of hope and the causal forces/energies inherent to Kibera's specific social assembly, with the understanding that these will ultimately shape future development.

The courses will also critically interrogate the *micro* scale of the Kibera context. Students will examine relevant fabrication technologies and materiality, as well as the specific technical aptitudes and fabrication capacities of the context. The pull

of technology emphasizes its capacity to empower individual people and entities. In some ways this runs the risk of increasing the very problems of disciplinary silo-ing that it aims to diffuse. Thus, this studio intends to deflect these solipsistic tendencies by rethinking technology as a non-categorical power, and finding mechanisms to activate it through the subjectivities of the existing social system (investigated at the *macro* scale). The studio will focus on the potentials of emerging technologies and social systems to achieve this, by engaging in critical discussions of what these technologies can and cannot do in Kibera while redefining where and how they might be implemented.

Both *micro* and *macro* scales ultimately aim to exercise the latent capacities already existing in Kibera that will induce positive change.

Arch 525-05 Special Design Topic- The Ethics of Place

Chere LeClair T 8-9:50

THE ETHICS OF PLACE

What is the role of place in our culture? How do we mediate between an era of globalization with its creation of mega cities, ubiquitous environs, and depletion of our world's limited resources and a measured, sensitive, and sustainable architecture that responds to the specific character of place?

The understanding and interpretation of place is complex and multivalent. What are the components that comprise place, and in turn how do they inform our decisions about design? The understanding of the human body in space provides the means by which space is understood, interpreted, and ultimately meaning derived. This consciousness in turn creates place. These concepts will be the basis of the initial course discussions. From there, the course will ponder the role of memory, culture, landscape, and the sacredness of place. Inherent in the discourse will be contemplation of how designers achieve a balance between the natural world, human experience, and the built environment and the ethical challenges faced by the contemporary architect in relation to place.

The course will require the students to produce research which will be presented to the class with the intent to enrich and extend the dialogue of the seminar.

The following list provides an example of some of the texts under consideration for the theoretical basis for this seminar:
Ciaccio, Gregory: *Architecture, Ethics, and the Personhood of Place*: University Press of New England, 2007
Menin, *Constructing Place: Mind and Matter of Place Making*: London: Routledge, 2003
Tuan, Yi-Fu. *Space, Place: The Perspective of Experience*: University of Minnesota, 1977

Arch 525-06 Special Design Topic- Inside/Out

Maire O'Neill R 3:10-5:35

A close look at the materials and design of glazed facades for large and small scale buildings. The seminar will involve analysis of case studies from Europe, Asia, and USA. A wide variety of types will be examined from the standpoint of material qualities, thermal comfort, programmatic demands, occupant control, air permeability, light permeability, heat gain, energy gain, construction, and embodied energy. This course will enable the student to delve deeper into a variety of façade assemblies and how they work in stone, earth, concrete, timber, metal, glass, double glass assembly, and plastics. In particular it will focus on shading methods for multi-layer / multi-leaf designs, and how to demonstrate/communicate the principles and advantages of these systems in graphic form to a client. In addition to

independent research, student work for the course will be of a graphic nature, both two and three-dimensional. There will be a focused applied design exercise as the final work for the course. Semester will include the following topics:

- applied sun angle analysis
- fixed and operable shading devices
- structural principles of a variety of façade types
- coupling of layers & leaves
- daylighting qualities & daylight penetration
- mitigation and harnessing of thermal buoyancy
- horizontal vs vertical shading systems
- variable and rigid shading devices:
 - sliding fittings
 - top-hung, projecting
 - folding wall
 - folding / sliding
 - vertical / horizontal pivot
 - combinations of the above
- the façade as a complete system
- understand the vocabulary of façade construction
- the sense of construction modules / grids
- relationship of façade to structure
- relationship of the façade to place

ARCH 533-01 Advanced Environmental Controls 3 credits

Tom Wood T 3:35-5:25

This course will explore the latest lighting design tools, techniques, strategies, and equipment. Knowledge will be applied in small design studies culminating with an entry in a national student lighting design competition or in a lighting design for your current design studio project.

Physical Modeling

We can accurately represent lighting effects through large scale models that are tested under real sky or the daylight simulator in the Integrated Design Lab. Interior illumination measurements can be made with small scale photometers.

AGI32 and Lumen Designer

The AGI32 and Lumen Designer computer programs allow you to design a space or import a CAD model, add windows and luminaries and then calculate the illumination from both daylight and electric lighting. Output includes iso-footcandle curves and color renderings.

E-quest-You will also study the energy impacts of your lighting design through the use of Equest energy software available free from the Department of Energy. Since lighting will often constitute over 30% of total building energy, it is important to analyze the lighting and daylighting impacts on total building performance.

ARCH 543-02 Materials 3 credits

Bill Clinton M 6:30-9:00 & W 5:30-8:00

Class registration is limited for this class. Registration will open on July 27th and is available on a first come first serve basis.

This course will examine the structural and artistic qualities of steel, glass and concrete. You will become familiar with basic hand and power tools and with the working properties of these materials. You will be challenged to push the limits of these materials, and the connections between these materials, with small scale projects.

Specifically we will cover:

- A safety course on proper tool usage and precautionary measures while working with machine and hand tools.
- Working properties of steel, glass and concrete.
- Connection techniques for these materials.

ARCH 543-03 Hand Tools 3 credits

Bill Clinton M 4:10-6:00 & W 3:00-5:00

Class registration is limited for this class. Registration will open on July 27th and is available on a first come first serve basis.

This course will cover the design and construction of a small wooden container using hand woodworking tools. You will become familiar with the use and care of traditional hand woodworking tools, along with wood characteristics, joinery and finishing techniques. Emphasis will be placed on design and the importance drawing and planning prior to the start of construction. You will be challenged as a designer and craftsman to create a unique piece of functional art. There will be one mid-term critique and one final critique.

Specifically we will cover:

- Familiarization with basic wood characteristics
- Proper and safe hand tool use and sharpening techniques
- Emphasis on the importance of drawing and planning prior to the start of construction
- Joinery techniques using only hand tools
- Basic finishing techniques

REQUIREMENTS

- Completion of a safety class on the proper use of hand tools
- A variety of sketches and drawings of your wooden container. Designs will be discussed and presented to me for final approval
- Completion of a container with wood as the primary material
- Showing safe use of wood working tools at all times

ARCH 564-01 Advanced Architectural Graphics 3 credits

Henry Sorenson T & Th 5:35-8:25

Advanced Architectural Graphics consists of an active, studio and on-site observation drawing experience. In it, students will be encouraged to develop the life-enhancing habit of recording perceptual impressions through drawing. Architectural field drawing, studied through a variety of media and architectural intentions will provide the focus for this course. Observation drawing awakens and internalizes visual reasoning, giving us a heightened and holistic sense of being 'in the world'. Developing this ability feeds the sense of perceptual awareness and expands the base of creativity architects must bring to their art.

In addition, this course, intends to serve the greater public good through documenting historic regional works of architecture. Scans of original images from this course will be made available to appropriate agencies for fund-raising, grantsmanship, and public presentations

ARCH 590-01 Masters Thesis 4 credits

By Committee Time TBA

Part I of the Thesis Process. This is the research and book component of the Plan A Thesis. To be taken by 1st semester Plan A students.

ARCH 590-06 Masters Thesis 6credits

By Committee Time TBA

Part II of the Thesis Process. This is the final project and presentation component of the Plan A Thesis. To be taken by 2nd semester, graduating Thesis students.