**ARCH 2474: Architectural Modeling and Media 3**

Spring 2013

**SYLLABUS**

**Course Description**

This course will build on what you have learned in the AMM2 course last semester. Last semester you were introduced to the basics of Rhino that has become an essential piece of software for architectural design. Digging deeper into the software this semester this course will assist you in developing modeling techniques that are based on your individual studio projects. Most assignments will therefore relate to your studio assignments. The guidance through a very rigid framework of research in the studio will in that way support a parallel building of skills in using digital tools methodical. Talking about digital skills does therefore not mean the tool itself, but the method that can drive design. The techniques and tools of design are in that way linked to the design through method. Acquiring digital skills is not merely a matter of learning a new tool but of defining a methodology that can drive design. Software used will include Adobe Photoshop and Illustrator, Rhino, AutoCAD, V-Ray and the basics of Grasshopper.

**Course Objectives**

1) Learning how to develop digital techniques and methods in relation to a design process

2) Learning how to approximate complex geometries.

3) Learning how to precisely represent complex geometries using the convention of architectural representation.

**Software**

3d: Rhino, V-Ray, Grasshopper

2d: Photoshop, Illustrator

**Course Structure**

Since the intention of the course is to provide technical assistance with your individual or group projects in the sophomore studio the course will use desk crits as a primary format.

**Readings**

*Architectural Geometry* by Helmut Pottmann, Andreas Asperl, Michael Hofer, Axel Kilian and Daril Bentley

**Course Requirements**

You are required to submit all 13 assignments given throughout the semester on time. Each assignment will count 5% of your total grade. In addition you will be required to take the two quizzes, each accounting for 15% of your final grade. You are required to attend all sessions of the course and will account for 5% of your total grade. Exceptions can be made for extraordinary circumstances. The instructor need to be notified of absences. Missing more than three classes will be interpreted as disinterest in the subject and reflect in a grade reduction. In case of schedule changes and other announcements it is required from each student to use and daily check their Georgia Tech e-mail. You are responsible to meet all the deadlines for presentations and submissions. Failure to do so will result in a grade reduction.

**Grading**

13 Assignments @ 5% 65%

2 Quizzes @ 15% 30%

Attendance 5%

TOTAL 100%

**Criteria for Evaluation**

Student performance will be graded upon motivation and commitment in course procedures and in the quality of projects and presentations. Commitment entails attendance in all lectures, tutorials and workshops, on-time completion of requirements and participation in discussions.

* "A" is reserved for work that is extremely sound and motivated; on outcome that clearly and consistently demonstrate inspired exploration of superior quality.
* "B" grade signifies good work, i.e., work which clearly shows development although some problems may be noted. Work reflects a solid commitment to learning and an understanding of the issues.
* "C" grade is satisfactory. It signifies work that meets the basic goals of the exercises, is presented in a complete manner satisfying the requirements and contains no serious errors of judgment or omission. In addition to that attendance, engagement in the course and timely completion of work is expected.
* “D” denotes unsatisfactory work, not passing; obvious shortcomings include but are not limited to any of the above; failure to complete assignments.
* “F” denotes failing work; low level attendance.
* “I” (Incomplete) will be given only within Institute policy.

**Course Schedule**

Week 1 - Jan 8, 10 - Assignment 1:

Orthographic drawings from ready-mades (Freehand, Photoshop)

Week 2 - Jan 15, 17 - Assignment 2:

Orthographic drawings from ready-mades (Photoshop, Illustrator)

Week 3 - Jan 22, 24 - Assignment 3:

2d- aggregation drawing and diagrams (Illustrator, Rhino)

Week 4 - Jan 29, 31 - Assignment 4:

3d modeling techniques and methods (Rhino)

Week 5 - Feb 5, 7 - Assignment 5:

3d modeling techniques and methods (Rhino)

Week 6 - Feb 12, 14 - Assignment 6:

Developing orthographic drawings from complex geometries

(Rhino, AutoCAD, Illustrator)

Week 7 - Feb 19, 21 - Assignment 7:

Developing orthographic drawings from complex geometries

(Rhino, AutoCAD, Illustrator)

Week 8 - Feb 26, 28 - Assignment 8:

Rendering (V-Ray)

Week 9 - Feb 26, 28 - Assignment 9:

Scripting, 3d modeling techniques (Grasshopper, Rhino)

Week 10 – Mar 5,7 - Assignment 10:

Scripting, 3d modeling techniques (Grasshopper, Rhino)

Week 11 – Spring Break:

Scripting, 3d modeling techniques (Grasshopper, Rhino)

Week 12 – Mar 26,28:

Scripting, 3d modeling techniques (Grasshopper, Rhino)

Week 13 – Apr 2,4 - Assignment 11:

Diagramming (Rhino, Illustrator)

Week 14 – Apr 9,11 - Assignment 12:

Orthographic presentation (Rhino)

Week 15 – Apr 15,17 - Assignment 13:

Rendering (V-Ray, Photoshop)

**Assignments**

**Week 1 - Assignment 1:** Orthographic Drawings from Ready-Mades (Photoshop): In teams of 3 draw an accurate plan and two elevations from one of the chairs found in the computer lab. Scan the result and import it into Photoshop. Save the drawings at scale 1/1 and upload them in the Assignment 1 folder on t-square as a 72dpi jpg. Please name the files (Lastname. Lastname, Lastname\_01)

Tu Jan 8

Th Jan 10 10

Tutorial

Tutorial

**Week 2 - Assignment 2:** Orthographic Drawings from Ready-Mades (Photoshop, Illustrator): Import the drawings from Assignment 1 into Illustrator and construct a sophisticated and very precise set of drawings of the chair. Drawings should include a top view, one elevation and one section. Present all 3 drawings on one 11/17 sheet, horizontal format. Use a conventional scale. Develop a powerful use of line weight, line type, shade, dimensions, text, labels, pointers, etc. This is an exercise that allows you to develop a sensibility and language of presentation. Save the drawing as a compressed pdf file and upload it on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Jan 15

Th Jan 17 10

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Tutorial

Tutorial

**Week 3 - Assignment 3:** Drawing Techniques and Methods (Illustrator, Rhino) Develop a series of diagrams that explain the digital technique that you used to generate your aggregate. Develop this technique into a digital construction method. Draw your final diagrams in Illustrator and organize them as a sequence on an 11”x17” horizontal sheet. Save the diagrams as a pdf file and upload them on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Jan 22

Th Jan 24 10

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Tutorial

Tutorial

**Week 4 - Assignment 4:** 3d Modeling Techniques and Methods (Rhino)**:** Use your most successful model that you produced for assignment 3 (day lighting system) and generate a digital model. Develop modeling techniques and methods that are most appropriate to your design intention. Document your modeling method as a set of diagrams. Organize them as a sequence on an 11”x17” horizontal sheet. Save the diagrams as a pdf file and upload them on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Jan 29

Th Jan 31 10

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Tutorial

Tutorial

**Week 5 - Assignment 5:** 3d modeling techniques and methods (Rhino):Generate a top view and a section from your model. Cut your digital model, organize your information in layers, edit your drawings and import them in Illustrator to generate a powerful set of orthographic drawings.

Tu Feb 5

Th Feb 7 10

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Tutorial

Tutorial

**Week 6 - Assignment 6:** Developing orthographic drawings from complex geometries (Rhino, AutoCAD, Illustrator): Generate a digital model that is based on your most successful model that you produced for assignment 4 (structural model). Develop modeling techniques and methods that are most appropriate to your design intention. document your modeling method as a set of diagrams. Organize them as a sequence on an 11”x17” horizontal sheet. Save the diagrams as a pdf file and upload them on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Feb 12

Th Feb 14 10

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Tutorial

Tutorial

**Week 7 - Assignment 7:** Developing orthographic drawings from complex geometries (Rhino, AutoCAD, Illustrator): Generate a top view and a section from your model. Cut your digital model, organize your information in layers, edit your drawings and import them in Illustrator to generate a powerful set of orthographic representations. Organize them as a sequence on an 11”x17” horizontal sheet. Save the diagrams as a pdf file and upload them on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Feb 19

Th Feb 21 10

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Tutorial

**Week 8 - Assignment 8:** Rendering (V-Ray): Develop your digital model further and generate a rendering that communicates the spatial qualities and the scale of your project. Save your rendering as 300dpi jpg 11”x17” horizontal sheet and upload it on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Feb 26

Th Feb 28 10

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Tutorial

**Week 9 - Assignment 9:** Grasshopper and 3d modeling techniques: At the first semester you learned the basics of Grasshopper. This assignment will be an opportunity to develop your skills further. Develop a Grasshopper Application for one part of your project. Develop a sequence of vector drawings (baked Rhino models) that graphically explain how your script works. Show the Grasshopper Application and your sequence of drawings on one 11”x17” horizontal sheet.

Tu Mar 5

Th Mar 7 10

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Tutorial

Tutorial

**Week 10 – Assignment 10:** Develop modeling techniques and digital construction methods (Rhino/Grasshopper) for different architectural systems that make up your final project. Explain your techniques and methods in a series of diagrams. Edit your final diagrams in Illustrator and organize them as a sequence on a 11”x17” horizontal sheet. Save the diagrams as a pdf file and upload them on T-square. Please name the files (Lastname\_Firstname\_01)

Tu Mar 12

Th Mar 14

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Tutorial

Tutorial

**Week 11 – Spring Break:**

Tu Mar 19

Spring Break

Spring Break

Th Mar 21

**Week 12**

Tu Mar 26

Th Mar 28 10

Tutorial

Tutorial

**Week 13 - Assignment 11:** Develop a set of diagrams that relate your studio project to the aggregate that you analyzed at the beginning of the semester. Show the aggregation behavior of your architectural systems that you developed for your final project such as structure, apertures, program, circulation or site strategies.

Tu Apr 2

Th Apr 4 10

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Tutorial

Tutorial

**Week 14 – Assignment 12:** Perfect the orthographic drawings for your final studio presentation.

Tutorial

Tu Apr 9

Tutorial

upload ASGMT 11

Th Apr 11 10

**Week 15 – Assignment 13:** Perfect your renderings for your final studio presentation. Develop an authentic user for lighting, showing the context, scale figures, etc.

Tu Apr 15

Th Apr 17

Tutorial

Tutorial

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**Week 15 – Exam Week**

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Tu Apr 15