COURSE SCHEDULE This schedule is a schematic overview of the semester and is subject to revision.

PART 1 BASIC 3D MODELING and VISUALIZATION

Week01
Aug 20-24

M Lecture **5:45 – 6:35pm: Course Introduction**

Reading: ***Schodek, Chapter 1: Characteristics of CAD/CAM Environments 3-15***
Schodek, Chapter 10: Fundamentals of Digital Modeling 179-191
Pottman, Chapter 2: Projections 25-47

References: *Cheng, Chapter 1 – Rhinoceros Functions and User Interface pg 65 -111, Chapter 2 – Rhinoceros Basic Operating Methods pg 113 – 161 Chapter 3 – Rhinoceros NURBS Surfaces pg 163 -215, Chapter 4 – Free-Form NURBS Curves and Point Objects pg 217 - 251, Chapter 5 – Curves of Regular Pattern pg 253 – 286*

Tu Lab: RHINO 3D: User Interface, Navigation
Th Lab: RHINO 3D: Creating Curves and Surfaces in 2D and 3D

Week02
Aug 27 – 31

M Lecture **5:45 – 6:35pm: Surface-Based Modeling In Architecture**

Reading: ***Pottman, Chapter 9: Traditional Surface Classes 287-329***
Pottman, Chapter 11: Freeform Surfaces 361-409

References: Cheng, *Chapter 6 – Curve Manipulation pg 287 - 338, Chapter 7 – NURBS Surface Manipulation pg 339 - 389, Chapter 8 – Rhinoceros Polysurfaces and Solids 391- 463 Chapter 10 – Object Transformation pg 523 – 570*

Tu Lab: RHINO 3D: Curve/Surface Manipulation and Transformations
Th Lab: RHINO 3D: 2D Extraction, Contouring, ILLUSTRATOR: Presentation

Week03
Sept 3 – 7

M Lecture **NO LECTURE –Labor Day**

Reading: ***Pottman, Chapter 14: Visualization and Analysis of Shapes 485-529***

References: Cheng, *Chapter 6 – Curve Manipulation pg 287 - 338, Chapter 7 – NURBS Surface Manipulation pg 339 - 389, Chapter 8 – Rhinoceros Polysurfaces and Solids 391- 463*

Tu Lab: LAB PRINT-OUT . . prior to start of lab . . ½ size
Th Lab: **PIN-UP : ASSIGNMENT 1.0, NEW CRIT SPACE**

Week04
Sept 10 – 14

M Lecture **5:45 – 6:35pm: Visualization: Drawings, Diagrams, and Rendering**

Reading: ***Pottman, Chapter 14: Visualization and Analysis of Shapes 485-529***

References: Cheng, Chapter 9 – Polygon Meshes pg 465 – 522,

Tu Lab: RHINO 3D: Meshing/Exporting BLENDER CYCLES: Cameras/Rendering
Th Lab: Production Day

PART 2 ADVANCED 3D MODELING and POST PRODUCTION

Week05
Sept 17 – 21

M Lecture **ASSIGNMENT 1 DUE MAIN GALLERY. PIN UP BETWEEN 5:20-5:40**

Reading: ***Schodek, Chapter 4: Complex Architectural Forms, 47-78***

References: *Chapter 11 – 2D Rhinoceros Data Analysis pg 571 - 590, Chapter 12 – Group, Block, and Work Session pg 691 – 620*

Tu Lab: RHINO 3D: Model Management, Groups, Blocks, Layers, Worksession
Th Lab ILLUSTRATOR/IN-DESIGN

Week06
Sept 24 – 28

M Lecture **5:45 – 6:35pm Rule-Based Modeling Techniques (Demonstration)**

Reading: ***Moussavi, The Function of Form, Vaults 159-231***
Aranda Lasch, Tooling

References: *Chapter 13 – 2D Drawing Output and Data Exchange pg 621 – 653, Chapter 14 – Rendering pg 655 – 709*

Tu Lab: RHINO 3D: Using Transformations and Rule Systems
Th Lab: ILLUSTRATOR/IN-DESIGN

Week07 Oct 1 – 5
M Lecture **5:45 – 6:35pm Hangzhou Sports Park**
Reading: ***Corser, ed. Chaszar + Glymph: CAD/CAM in the Business of Architecture, Engineering, and Construction***

Tu Lab: TBD
Th Lab: TBD

Week08 Oct 8 – 12
M Lecture **5:45 – 6:35pm Digital Modeling for Fabrication**
Reading: ***Pottman, Chapter 16: Digital Prototyping and Fabrication 569-597***
Schodek, Chapter 3: Transitions: Digital Design for Fabrication, 29-45

Tu Lab: LAB PRINT-OUT . . prior to start of lab . . ½ size
Th Lab: **PIN-UP : ASSIGNMENT 2 NEW CRIT SPACE**

Week09 Oct 15 – 19
M Lecture **NO CLASS - FALL BREAK**

Reading: ***Schodek, Chapter 11: Design Development Environments 193-218***
Schodeck, Chapter 12: Digital Design in Practice 219-234

References: Krygiel, Chapter 1 – Understanding BIM: From the Basics to Advanced Realities pg 1-14, Chapter 2 – Revit Fundamentals pg 15-64, Chapter 3 – Knowing Your Editing Tools pg 65-86, Krygiel, Chapter 5 – Customizing System Families and Project Setting in Your Template pg 139-168

Tu Lab: REVIT: User Interface, Project Set-up
Th Lab: REVIT: Modeling Basics

PART 3 BIM and PAREMETRIC MODELS

Week10 Oct 22 – 26
M Lecture **ASSIGNMENT 2 DUE MAIN GALLERY. PIN UP BETWEEN 5:20-5:40**

Reading: ***Schodek, Chapter 11: Design Development Environments 193-218***
Schodeck, Chapter 12: Digital Design in Practice 219-234

References: Chapter 6 – Modeling Principles in Revit I pg 169-190, Krygiel, Chapter 7 – Modeling Principles in Revit II pg 191-220, Chapter 8 – Concept Massing Studies pg 221-248, Chapter 9 – From Conceptual Mass to a Real Building

Tu Lab: REVIT: Revit Basics
Th Lab: REVIT: Revit Basics

Week11 Oct 29 – Nov 2
M Lecture **5:45 – 6:35pm Conceptual Design in Revit/Vasari (Demonstration)**

Reading: ***Corser, ed. Celento: Innovate or Perish: New Technologies and Architecture's Future, 57-78***

References: Krygiel, Chapter 11 – Creating Custom 3d Content pg 301-331, Chapter 12, Extended Modeling Techniques - Walls pg 333 – 360, Chapter 13 – Extended Modeling Techniques – Roofs and Slabs pg 361 – 404, Chapter 14 – Extended Modeling Techniques – Railings and Fences pg 405-422

Tu Lab: REVIT: Conceptual Modeling Tools
Th Lab: REVIT: Conceptual Modeling Tools

Week12 Nov 5 – 9
M Lecture **5:45 – 6:35pm Simulation, Analysis with Vasari (Demonstration)**

Reading: **TBD**

References: Krygiel, Chapter 15 – Presentation Techniques for Plans, Sections, and Elevations pg 423 – 444, Chapter 16 – Presenting Perspective Views pg 445–464, Chapter 19 – Annotating Your Model pg 513 – 566.

Tu Lab: VASARI: Sheet Sets
Th Lab: **DRAFT DIGITAL SUBMISSION 1: 50% SET**

Week13 Nov 12 – 16	**M Lecture**	**5:45 – 6:35pm BIM Automation**
	Reading:	**TBD**
	References:	Krygiel, Chapter 20 – Presenting Your Design pg 817 – 834. Chapter 4 – Configuring Templates and Standards pg 101 – 138, Chapter 5 – Managing a Revit Project
	Tu Lab:	TBD
	Th Lab:	**DRAFT DIGITAL SUBMISSION 2: 75% SET**
Week14 Nov 19 – 23	**M Lecture**	**5:45 – 6:35pm The Changing Business of Computation in Design**
	Tu Lab:	Production Day
	Th Lab:	Thanksgiving
Week15 Nov 26 – 30	**M Lecture**	**ASSIGNMENT 3 DUE, DIGITAL SUBMISSION + Course Review**
	Tu Lab:	TBD
	Th Lab:	TBD
Week16 Dec 3 – 7	**M Lecture**	**5:45 – 6:35pm, Guest Lecture, TBD**
	Tu Lab:	TBD
	Th Lab:	TBD
Week 17 Dec 10 – 14	**FINAL EXAM (Time TBD)**	

BIBLIOGRAPHY

Cheng, Ron K C, Inside Rhinoceros 4, Delmar Cengage Learning, 2008

Krygiel, Eddy; Reas, Phil; Vandezande, James; Mastering Revit Architecture 2013, Sybex, 2012

Corser,Robert, Fabricating Architecture: Selected Readings in Digital Design and Manufacturing, Architectural Press, 2010

Moussavi, Fashid, The Function of Form, Actar 2009

Pottman, Helmut, et al., Architectural Geometry, Bentley Institute Press

Schodek, Daniel, et al., Digital Design and Manufacturing: CAD/CAM Applications in Architecture and Design, John Wiley & Sons, 2005

RESOURCES

RHINO & GRASSHOPPER
www.rhino3d.com/tutorials.htm
http://designreform.net

PHOTOSHOP, ILLUSTRATOR, & IN-DESIGN
www.adobe.elementk.com
http://designreform.net
http://www.vtc.com
login/pass: Please see your lab instructor

AUTOCAD / REVIT
www.autodesk.com
www.cadtutor.net
http://www.revitcity.com
http://www.softwaretrainingtutorials.com/revit-9.php

UNL Sites

UNL Blackboard website	my.unl.edus
UNL Information Services	is.unl.edu
UNL Student Workshops	itg.unl.edu/workshops/student.shtml#//archhome

Electronic Reserve website
www.unl.edu/libr/reserve