ARCT 121 Building Information Modeling
2 Credits

Course Description

This course is an introduction to Building Information Modeling (BIM). We will specifically be using the latest version of the Autodesk Revit Architecture software. The BIM software will be used in conjunction with Residential Design and create a virtual model. (Prerequisites: None)

Course Objectives

Upon successful completion of this course, the student will be able to:

1. Relate sketching to designing in the digital world.
2. Define Building Information Modeling (BIM) software.
3. Create, save, and open projects in Revit.
4. Navigate around in drawings in Revit.
5. Understanding the basics with Revit walls, doors, windows, and roofs.
6. Utilize Line work and Modify tools.
7. Draw 2D Architectural objects.
8. Complete project set-up from scratch.
9. Layout exterior and interior walls.
10. Layout doors and windows.
11. Adjust project set-up to include a basement and second floor.
12. Layout stairs
13. Utilize basic Revit dimensioning.
14. Draw a roof and review roof design options.
15. Place skylights on the roof.
16. Draw floor and ceiling systems.
17. Place light fixtures
18. Create and view parametric Exterior and Interior Elevations.
19. Modify the project model from Exterior and Interior Elevations.
20. Specify Section cutting planes in plan view.
21. Modify the project model from section views.
22. Create several wall sections.
23. Annotate and detail sections.
24. Model bathroom, kitchen, and furniture layouts.
25. Layout guard rails.
26. Set up sheets and create a sheet index.
27. Print a set of drawings.
28. Apply all above knowledge to a final project.

Required Text

Residential Design Using Autodesk Revit Architecture 2014, Daniel John Stine CSI, CDT
Published April, 2013
ISBN: 1585038105

Key Features

- Starts at an introductory level
- Project based tutorials design a house from start to finish
- Video instruction is included with each book
- Bonus material covers site design, Revit content creation, an introduction to SketchUp, and much more!

The NDSCS Bookstore carries the text. (www.ndscsbookstore.com)

Contact Coleen at the NDSCS Bookstore for the most current textbook information (1-800-342-4325, ext. 2239 or coleen.thoe@ndscs.edu. You may also visit the NDSCS Bookstore web site at www.ndscsbookstore.com and search for book information by class by clicking the "Textbook" tab.

Course Policies and Procedures

Access Policy: Computer Failures and Viruses

Online students must maintain computer access at all times to the online course. Lack of computer access as an excuse for late work or missed exam/quiz will NOT be accepted. Review the Computer Access Policy to learn how you can take a proactive approach to your online success.

Student Attendance

Regular attendance and completion of all assignments, on time and as scheduled, is important to your success in this course. An online student who does not regularly attend their online class for a period of seven consecutive days may be dropped from the course. Attendance is evidenced by weekly completion of assignments and/or participation in online discussions. Efforts to contact inactive students are attempted as soon as each semester begins; however, if there is no response from the student and inactivity continues, a drop will be enacted. See the entire NDSCS Attendance Policy at www.ndscs.edu/online-attendance.

If your instructor is unexpectedly unavailable and may be delayed in reviewing or correcting assignments, you will be notified of this as a sign of courtesy and respect. There will be times when a student needs to be "away." If this happens to you – please contact your instructor so they can do what they can to make the impact as small as possible.

Online Student Participation and Conduct Guidelines

The practices of courtesy and respect that apply in the traditional classroom also apply online. However, the expectations and practice differ in the online classroom to greater extent. Review the Online Student Participation and Conduct Guidelines (**Appendix A**) to learn of these expectations.

Assignments

Please follow the order of units as each unit will build onto the next one and will be accessible according to the schedule posted within the online course.

Assignments and quizzes within each chapter are **due within specified time frames**. Refer to the Schedule for specific due dates. The goal is to have the grades updated weekly.

Assignments not completed by the specified deadline but submitted late will have **10% of grade points deducted** at instructor's discretion.

No points will be assigned for incomplete assignments. Be prepared to spend **at least four (4) hours per week** in the online class, studying, and completing assignments.

Submitting Assignments

All assignments should be turned in via **Dropbox** unless otherwise specified. You are **strongly encouraged** to make hard copies of your assignments and communications with the instructor to avoid losing data in the case of technical issues. *At the first sign* of problems, contact your Internet Service Provider (ISP) immediately.

It is your responsibility to access the class on another computer in the event of hardware or software problems. If your problems are not cleared up within 12 hours, contact your instructor to make other arrangements.

Quizzes and Exams

Online quizzes and exams are a part of this class to assess your progress and whether you have met the course objectives.

Proctored Activities

There are NO "Proctored" activities in ARCT121.

Student-Instructor Communications:

There are several areas inside the course area that you can post a message -- keep in mind that these posted comments are visible to everyone enrolled in the class. Many times, this is appropriate and exactly what you WANT ... at other times you may have comments or questions that you want to be more private. At these times please contact your instructor by email or by phone.

When posting a question inside the course - please know that questions will be answered within 48 hours, and every attempt will be made to answer within 24 hours. *****Please make SURE to be as clear as possible when referring to a question/problem. Please indicate the number, page, book, etc … so we both KNOW we are both "on the same page.***** The exact time required will depend on the time the question was posted and the day of the week in which it was posted.

Your instructor will check email REGULARLY during the work week ... you are expected to do the same! It is CRITICAL that you check your email at least every 24-48 hours ... it is also CRITICAL that you come into the class at least every 24-48 hours to look for postings etc.

When sending an email, please include your full name so your instructor knows who they are responding to. Often, the email address does not indicate who is sending the message.

If your instructor expects to be unavailable for more than 24-48 hours, you will be notified by email or a posting. It is greatly appreciated if you would do the same.

Student E-Mail Accounts

NDSCS students are to use an NDSCS email account exclusively to ensure the lines of communication with your instructor and NDSCS are not broken, which often happens with other email providers. You can access your email account by following instructions at www.ndscs.edu/It-Setup. If you need help accessing your NDSCS email, contact the NDSCS IT Service Desk at 800-342-4325 ext 3333 or ndscs.servicedesk@ndscs.edu.

To make your NDSCS email account your preferred email address, log into your CampusConnection account and check the "preferred" box by campus email.

The NDSCS e-mail system provides students with an entire suite of services such as:

- 10 GB storage for email
- Instant messaging through Skype for Business
- Rich calendaring
- Photo sharing
- Multi-browser support
- SMS alerts to mobile phones

Grading Policies

Every attempt is made to grade the work as soon after the deadline as possible. Depending on the type and complexity of the graded assignment it may be the day after the deadline (such as a quiz) … but it is the plan to have all complex assigned work (such as a drawing) back to you as quickly as possible so mistakes on one drawing do not affect the following drawing.

Grading Scale

Your performance in this class will be based on the quality and accuracy of your answers on assignments, quizzes, and tests. Assignments that do not meet the deadlines given by the instructor will be reduced 10% per day for each calendar day they are late.

Letter grades will be awarded as follows:

LETTER GRADE	PERCENT
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

Grades for this course will be a cumulative grade consisting of homework, quizzes and a comprehensive final test.

Discussion Grading Criteria

Participation in threaded discussions **IS REQUIRED**. When a threaded discussion is posted you will have a specific time period in which to participate. Make sure to make a posting relevant to the discussion topic - and then respond to other students. A minimum of TWO postings is required for all discussions. Your FIRST posting should be completed in the "middle" of the scheduled unit (often this would be Wednesday) and your "reaction" to other postings needs to be completed by the end of the scheduled unit.

Discussions will be closed on a specific date, so **make sure to participate in the discussion before it closes. You will NOT be given ANY points for late postings!** (A discussion is intended to be relevant to the CURRENT classroom activity and is intended for ALL students. A late posting will likely never be SEEN by the other classroom students … and therefore will get no credit.)

Points will be earned in the gradebook for your participation in the assigned discussions. Points will be assigned using the following method and may be computed on a combination of columns 1 through 3:

(BEST)	Pts	(GOOD)	Pts	(MINIMUM)	Pts
You respond with an opinion or information pertinent to the topic. Use two or more complete sentences.	5 max	You respond with an opinion or information that is pertinent to the topic but in only one sentence.	3 max	You respond with an opinion or information not pertinent to the topic.	2 max
You not only post your thoughts, but also post reaction to another student as described above.	3 max	You post reaction to another student - but not as described.	1 max	You do not post your reaction to another student as described.	0 max
0 spelling or grammar errors	2 max	1 spelling or grammar errors	1 max	2 or more spelling or grammar errors	0 max
Total Possible Points Rubric #1	10 max	*Total Possible Points Rubric #2*	5 max	*Total Possible Points Rubric #3*	2 max

Ties to Program Assessment Outcomes

The knowledge gained in this class will be used directly in all the following drafting classes. It is critical that a graduate of our program be able to draw an accurate, complete and "readable" set of architectural drawings.

Academic Integrity

Integrity is an NDSCS core value and there is an expectation that all students, as members of the college community, adhere to the highest levels of academic integrity.

Dishonesty in class, laboratory, shop work or tests is regarded as a serious offense and is subject to disciplinary action by the instructor and dean of the respective division. For more information, refer to the NDSCS Student Planner or College Catalog under College Policies and Basic Regulations of Conduct.

Disabilities and Special Needs

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the **Student Accessibility Coordinator** (phone 671-2623, or toll-free 1-800-342-4325 ext. 3-2623) as early as possible in the term.

APPENDIX A
ONLINE STUDENT PARTICIPATION AND CONDUCT GUIDELINES

Online courses are based on the premise that students learn best in a community. The instructor plays an important role, but this is a different role than most instructors play in the traditional, face-to-face classroom. While you may see a shift in the way classes work, you'll also notice that some things don't change: the practices of courtesy and respect that apply in the ordinary classroom also apply online, and may actually require more attention in this venue. Here are some guidelines:

1.   **Get involved**. In the online environment, it's not enough to show up! Your voice must be heard in order to show your presence. Your comments are needed to add to the information, the shared learning, and the sense of community in each class.

2.   **Be persistent**. Remember that for many this is a fairly new environment. Each instructor still sets the rules, and you need to abide by them; however, if you run into any difficulties, don't wait! Send your instructor an email immediately or post in the Discussion Area. Most problems are easily solved, but your instructor and your fellow students need to hear from you before they can help.

3.   **Share tips, helps, and questions**. For many, taking online courses is a new experience. There are no dumb questions, and even if you think your solution is obvious, please share it by posting it in the Discussion Area. For every student who asks a question, there are 10 others wanting to know the same thing.

4.   **Think before you push the Send button**. Did you say just what you meant? How will the person on the other end read the words? While you can't anticipate all reactions, do read over what you've written before you send it.

5.   **Consider the context**. Remember that we can't see the grin on your face when you make a sarcastic comment, we can't see the concern on your face if you only say a couple of words, and we can't read your mind and fill in the gaps if you abbreviate your comments. So: help us "see" you by explaining your ideas fully.

6.   **Ask for feedback**. Not sure how your ideas and comments will be taken? Remember there's a person on the other side. If you disagree with what someone has said, practice all your communication skills as you express that disagreement. "Flaming," or flying off the handle and ranting at someone is unacceptable; it is the equivalent of having a tantrum, something most of us wouldn't do in an onsite, face to face classroom.

7.   **Act with respect**. Any discriminatory, derogatory or inappropriate comments are unacceptable and subject to the same disciplinary action that they would receive if they occurred in the face to face classroom. If you have concerns about something that has been said, please contact your instructor.

8.   **Exercise integrity**. Plagiarism, cheating, and other violations of ethical student behavior are serious actions in a learning community. See Academic Integrity Policy in the course syllabus.

9.   **Recognize the consequences**. Consequences of online student behavior that contradicts the NDSCS Academic Integrity policy will be addressed on an individual basis and in accordance with NDSCS Academic Integrity policy. Refer to the NDSCS Student Planner or College Catalog for more information.

*Adapted with permission from Dr. C. A. Keller, San Antonio College