Course Syllabus

# ID 4105 Syllabus

**Advance Modeling Concepts, 3 Credits, Fall 2026**

**ID 4105 1 – 12:30 pm – 1:45 pm**

## Instructor Information

| Instructor | Email | Office Hours & Location |
|---|---|---|
| Timothy G Purdy | tim.purdy@design.gatech.edu | Office hours: Tuesday/Thursday 11 - 12 pm (Please email me to setup a meeting)<br>Office: Room 366 A |

To meet students' requirements, needs, and comfort levels, meetings and office hours will be offered in-person, virtually, or outdoors.  Please email me to setup a meeting.

## General Information

This semester will explore the concepts, tools and theories used to model and validate complex forms encountered in product design process. Tools such as 3D sketches, curves and reference geometry are the starting blocks to modeling. When combined with concepts such as surfaces, multi-generational modeling or parametric modeling, more advance forms can start to emerge. We will also explore new concepts such as Generative Design. Today, they made emerging technologies but common place within 5 to 10 years.
The course will include lectures, discussions and in-class demonstration. Some of the topics covered will include: solid, surface & hybrid modeling, continuity theory, curves, spines, 3D sketching, advance fillets, shelling, bodies and assemblies.
Since many of you have already taken class from me, you know that I try to empower you to become better designers through the expression of 3D forms. I try to take a pragmatic approach to help you learn the tools, concepts and theories for this course. The weekly classes cover material for your next assignment. Some material may directly apply to the assignment while other material is presented to broaden your scope and knowledge.

## Pre- &/or Co-Requisites

ID 2101, ID 2102, ID 3104 or equivalent introduction to CAD or 3D modeling course is required as a prerequisite.

## Course Goals and Learning Outcomes

Upon completion of the course students are expected to demonstrate knowledge, skill and abilities in the

following areas:

- Use modeling methods such as master model, assemblies or hybrid modeling to help define approaches to complex forms
- Evaluate forms to determine which geometry type (solid and surface) works the best
- Understand how to use construct elements (spline, sketch, 3D sketch, curves, etc) as foundational pieces for modeling
- Use design principles to create “best” practices for injection molding pieces
- Try out emerging technologies and concepts related to 3D modeling & design

## Calendar

Please see the Calendar tab for dues dates of assignments and in-class help sessions.

## Course Requirements & Grading

| Assignment | Date | Weight (Percentage, points, etc) |
|---|---|---|
| **Assignments 1** | **See Schedule** | **12%** |
| **Assignments 2** | See Schedule | 20% |
| **Assignments 3** | See Schedule | 27% |
| **Assignments 4** | See Schedule | 20% |
| **In-Class Exercises** | See Schedule | 21% |
| **Total** | | 100% |

## Extra Credit and Grade Dispute Policies and Procedures

Extra credit is usually not given during the semester. However, students do have the ability to resubmit an assignment for a re-grade or use this to turn in an assignment late.

## Description of Graded Components

Each assignment has its own description and rubrics for grading.  When grades are returned through Canvas, comments will be posted for each item in the rubrics.  Please make sure to check the rubrics for these comments to help you improve your work and knowledge.

In-class exercises are to practice material covered during the week and to help develop skills, techniques and knowledge for the next assignment.  Requirements for each exercise will be defined during class. Students are expected to work on the exercise and submit it by the end of the next day.  In-class exercises cannot be made up if the student misses a class unless it is an approved absent prior to the class.  A total of 9 in-class exercises will

be given during the semester.  The top 7 exercises will count.

## Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 0-59%

## Course Materials

## Course Text

No book is required for this course.

An extensive set of learning tutorials is available online (see Course Resources & Tutorials).

## Additional Materials/Resources

LinkedIn Learning - **https://linkedinlearning.gatech.edu (https://linkedinlearning.gatech.edu)**

Course Specific Tutorials - Available through Canvas Modules and Media Gallery tabs

## Course Website and Other Classroom Management Tools

Canvas will be used throughout the semester as a way to communicate the syllabus, assignments, homework, grading, course resources, etc. and as a way to turn in assignment and homework files electronically.  Students are expected to check their email daily for any class announcements.

## Submission Requirements

All assignment files are to be turned in electronically through the Canvas system.  File and folders can be comprised and submitted in a zip format for easier submissions.  If a PDF is required for submission, submit it separately in Canvas so it can easily be reviewed.

The course folder system in the College of Design can be used as a backup in case the Canvas system is not available. If an assignment has a physical model requirement, a separate due date for the model will be communicated.

## Attendance and/or Participation

Students are expected to attend and participate in any discussion & in-class exercises.  For in-class demo and presentation sessions, students are expected to be present on the dated indicated.  Exception will be granted for medical issues and approved ascendance.

## Collaboration & Group Work

All work is to be student's own work. No group work is allowed for any assignments or in-class assignments. However, asking for help from other students is encourage since it is a great way for both students to learn.

In addition, students are to create their own content for assignments unless otherwise noted. Students are not allowed to use content from in-class demo files unless specific permission is given.

## Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Assignments are due by midnight on the date indicated in Canvas. To help manage the course workload with your other courses, one of the first three assignments can be submitted late or as a regrade assignment. For a late assignment, you do not have to provide any notice. It is assumed that not submitting an assignment means it is the late assignment. If submitting an assignment for a regrade, re-submit all the required files even if they have not been updated.

## Course Expectations & Guidelines

## Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review **Georgia Tech's Honor Code (https://catalog.gatech.edu/policies/honor-code/)** and the student **Code of Conduct (https://catalog.gatech.edu/rules/18/)**.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

## Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the **Office of Disability Services (http://disabilityservices.gatech.edu/)** at (404) 894-2563, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

## Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. **The Student-Faculty Expectations (http://www.catalog.gatech.edu/rules/22/)** articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

## Student Use of Mobile Devices in the Classroom

Take a break! Please turn off or silence all cell phones while in class.

## Additional Course Policies

Got a question? Ask it!  I believe it helps make the class more engaging and easier to pay attention.  Questions also help me understand if I did not present the material properly or maybe need to go into something deeper.

## Campus Resources for Students

There are several course specific tutorials that have been developed:

KeyShot: **http://purdy.gatech.edu/keyshot-tutorials/ (http://purdy.gatech.edu/keyshot-tutorials/)**

SoID Videos: **https://mediaspace.gatech.edu/category/SoID+Videos/164319331 (https://mediaspace.gatech.edu/category/SoID+Videos/164319331)**

See also the Introduction Module that contain pages on Software and Tutorials.

## Rationale for Teaching Techniques

I have tried to structure the content and assignments to help make this class successful for each student.  With so many students, it would be hard to keep track of each students situation.  I structured  the Past Due, ReGrade and Late Assignments as a way for you to manage the course requirements and workload.

To help bring in relevant information to the class, each student is expected to present during the semester.  It gives you an opportunity to learn something new and share it with your fellow students and me.

## Teaching Philosophy

I have a philosophy that even in failing, you are learning. Students will bring in a lump of plastic because the 3d printer failed. Just because the 3d printer failed, it does not mean you did not learn about the process. Or, your interface prototype works great when testing and developing it, but start acting up during the testing phase. Maybe the user does something unexpected and causes the interface prototype to mess up. That is why you create an interface prototype. You are learning what the user really does, not what you want them to do. I can sum up this course with this phrase “Failing to Learn.”  Although grading on just effort would be great, students must submit required assignments to be fair to all stdents.

## Software

Please see the **Software (https://gatech.instructure.com/courses/548176/pages/software) (https://gatech.instructure.com/courses/548176/pages/software)** page that is available under the Introduction Module or under the Pages tab.