Center for Talent Development
Northwestern University
Course Syllabus Template

Gifted LearningLinks Program

Course Title:

Alice

Course Description:

If you are looking for an introduction to computer programming, Alice is it! This 3-D programming environment uses drag-and-drop graphic tiles to help students tell a story or create an interactive game or video. Final products may be displayed on the web (with parental permission). While Alice is easy to master, it prepares students for higher-level experiences because the instruction statements correspond to standard statements in production- oriented programming languages such as Java, C++, and C#. Alice was designed by Carnegie Mellon University to be a student's first exposure to object-oriented programming.

Outcomes:

Upon successful completion of this course, students will:

- Know the basics of software design, programming, and team collaboration.
- Understand basic software control structures such as conditional clauses and loops.
- Understand the concept of "objects" and the role of properties, methods, and functions.
- Understand the concept of "events" and how to make programs respond to them.
- Understand how concepts introduced in the Alice system apply to "real world" programming languages such as Java.
- Be able to write programs in the Alice environment.
- Be able to write storyboards describing a sequence of events in model worlds.
- Be able to write programs in Alice to implement storyboards.
- Be able to use debugging tools to fix problems in programs.
- Be able to create user interfaces in Alice to control programs at runtime.
- Be able to divide up work in a project and individually write program components that work together.

Resources and Materials:

- Alice website at Carnegie-Mellon University
- Learning to Program with Alice, **ISBN-13:** 978-0132085168
  This is the "standard" Alice text, but I'm not requiring it because it is so expensive (almost $50 at Amazon). It's a good book for learning, but it's not a complete reference to Alice, and I mean the learning materials I present to be sufficient. You won't regret it if you buy it, but it's up to you.
- Alice in Action, **ISBN-13:** 978-1418837716
  This is an excellent alternative and much less expensive.

Note: Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

Schedule:

	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 1	Orientation to Online Learning Alice user interface	Download and experiment with the Alice system	Introduce yourself to me and your classmates	Interest / information survey
Week 2	Creating storyboards Simple programming	Implement a simple scene from a book or movie	Personal project ideas	Storyboard Exercise program
Week 3	Functions Expressions Simple control statements	Spider robot navigation Kangaroo hops onto crate	Group project ideas	Exercise program
Week 4	Objects: methods, parameters, inheritance	Frog escape Magic act	Group project definition progress	Exercise program
Week 5	Interactive programs Events and even handlers Collaboration tools	Flight simulator or Robot remove control	Group project definition progress	Exercise program
Week 6	Functions and conditional execution	Ice skater Language tutor	Experience with collaboration Group project decisions	Exercise program
Week 7	Looping	Frog and ladybug or Bumper cars	Group project progress	Exercise program
Week 8	Project endgame Recursion (if time)	Work on projects Exercise T.B.D.	Group project progress	Group project draft
Week 9	Project presentations Requested topics	Complete project	Experiences and feedback	Group project

Student Evaluation and Grading Policies for Credit Courses Only:

Enrichment students will receive a final narrative evaluation after the course is complete.

Instructor Biography:

Mark Spieglan obtained his A.B. in physics and Ph.D. in geophysical sciences from the University of Chicago, and his M.S. in Computer Science from DePaul University. He has worked in software development and process management since 1982, including 17 years with AT&T / Lucent. Since 2001, he has been the principle software developer for Forecasting and Inventory Consultants, Inc. He has also done freelance work developing websites and video software tutorials, and substitute teaching at the junior high and high school levels. He is interested in using technology to enhance learning and collaboration. He previously taught "Exploring Engineering" and "Genetics and Genomics" with CTD.