# Syllabus 2021 FALL CS 452/552 Software Engineering

(All sections)

CRN 52728 CS 452-301

CRN 52729 CS 552-301

# General Information

## Contact Your Instructor

**Name:** R.B.Abhyankar

**Email:** R.B.Abhyankar@indstate.edu

**Office:** Root Hall, A-182

## Lecture, Exam, Office Hours

**This class is online asynchronous; there is no class meeting time.**  
**Final Exam:** Details will be provided later.

**Instructor Office Hours:**. 8:00 a.m. to 9:00 a.m. MWF

via land line telephone: 812-299-5177

Also by appointment.

**Website**: On Blackboard

## Prerequisites

A grade of C or better in CS 201, or consent of instructor.See <http://cs.indstate.edu/info/courses.php>

A 500 level course cannot be taken as part of the MS program if you have completed the same 400 level course at ISU. For example, if you completed CS 452 as an undergrad, you **cannot** take CS 552 as an MS student and count it towards the degree.

## Recommended and/or Required Text

REQUIRED TEXTBOOKS: (5 textbooks)

[1] Object-Oriented Analysis and Design with Applications (Third Edition)

     by Grady Booch et al (Addison-Wesley, 2007,  ISBN-13: 978-0-201-89551-3)

[2] UML in Practice

      by Pascal Roques (Wiley, 2004, ISBN-13: 978-0470848319)

[3] The Object Constraint Language (Second Edition)

by Jos Warmer & Anneke Kleppe (Addison-Wesley, 2003, ISBN 978-0-321-17936-4)

[4] Design Patterns in Ruby

by Russ Olsen

(Addison-Wesley, 2008, ISBN-13: 9780321490452)

[5] Practical Object-Oriented Design: An Agile Primer Using Ruby, 2nd Edition by Sandi Metz, Addison-Wesley, 2018,

ISBN-13: 978-0134456478

## Course Announcements

Announcements regarding the course will be made on the BlackBoard web site for the class. You should regularly check the BlackBoard site for Announcements and Learning Modules , and check your ISU email.

**Classroom conduct (for face-t-face classes)**

You may not use cell phones, iPods/music players, etc. during class. You should be civil and respectful to both the instructor and your classmates, and you should arrive to class a few minutes before the scheduled lecture so you are ready for lecture to begin on time. You may use your computer during class if you are using it to follow along with the examples that are being discussed. You may not check email, facebook, work on other courses, etc. during class.

# Course Description

The official description of this course from the catalog is :

This course studies the software life cycle: specification, object-oriented programming and design, program development, validation, testing, debugging, documentation, maintenance, revision control, CASE tools.

# Course Outline

Concepts, Complexity, The Object Model, Classes and Objects, Classification. (2 week)

Notation (UML) (2 weeks) , Process :UP and Agile (1weeks) , Pragmatics (1 week) . Functional, Static, and Dynamic views, Design (3 weeks) , Object-Constraint Language: OCL, (1 weeks) , Agile development, Ruby and Design Patterns (3 weeks).

The course begins with a review of Object Orientation, and of the Software Crisis.

Next methods of classification are covered.

That is followed by a coverage of UML and various diagrams.

Next comes the discussion of Software Development Methods: Incremental and Iterative

development, planned and agile methods, phases, milestones , macro and micro processes,

are described.

Pragmatic issues are covered next: Personnel, Teams, Documentation, Reuse, Tools, Architecture,

are discussed next.

Next comes the development of functional, static, and dynamic views for example case studies,

and a design procedure is given after the completion of these views. Also covered are 3-level architectures, and Jacobson’s stereotypes.

Next Object Constraint Language, and Model Driven Architecture are covered. Use of tools for validation of OCL models is described.

Agile object-oriented development is considered next.

The course concludes with a discussion of Ruby and Design Patterns in Ruby.

# Learning Outcomes

After completing the course, the student should be able to carry out Object Oriented Analysis and Design: develop functional, static, dynamic views, and design, and demonstrate mastery off the Unified Modeling Language, Planned and Agile Processes, and Object Constraint Language, OCL, Agile development, and Ruby and Design Patterns.

# Expected Amount of Work

If you take this class seriously and get what you should out of it, some weeks you will likely be spending around 4 **hours/week** or more on the class. The students who get A’s in their CS courses and have an easy time finding jobs do spend this much time on this course. Not everyone would need to spend this much time and not all weeks will be the same, but you should plan on putting in whatever time it takes.

# Grading and Assignments

The students of this course have the following responsibilities: read assigned readings before lecture, attend lecture, complete homework assignments, take in-class quizzes, take exams, and complete a project.

DISTRIBUTION OF POINTS

Assignments: 70 %

Quizzes: 5 %

Final Exam: 25 %

## CS Course Policies

Note that this course follows all standard CS course policies. In particular check the CS course policies related to - cheating/plagiarism, attendance, missing exams. See <http://cs.indstate.edu/info/policies.html> for details.

## Late Homeworks

Assignments submitted late may not earn full credit due.

## 

## Start Homeworks Early

We suggest attempting a homework assignment the day it is given, or the day after, so that if you have a problem you can ask early. If you continue to have problems in trying to complete the assignment, you will have time to ask again. Many of the homework assignments require thought and problem solving, which takes “time on the calendar” not just “time on the clock”. By that we mean that spending two hours on 3 consecutive days may be more productive than trying to spend 6 hours at once on the assignment.

## Grade Cutoffs

GRADING SCALE:

Percentage Minimum Grade

95 and above A

90-93 A -

87-89 B +

84-86 B

80-83 B -

77-79 C +

74-76 C

70-73 C -

67-69 D +

64-66 D

60-63 D -

59 and below F

Our goal is that the different grades have the following rough meaning.

**A+/A**   
You can do *all* the assignments *on your own*.

**B+/A-**You understand nearly everything, and should be all set to use this knowledge in other courses or in a job.

**B-/B**

Most things you understand very well and a few you might not (more towards the former for a B and more towards the latter for a C).

**C/C+**  
Learned enough and have the minimum skills to move on in the subject.

**D+/C-**   
You did put some effort in, and understand many things at a high level, but you haven’t mastered the details well enough to be able to use this knowledge in the future.

**D-**

Students will normally *not* get an F if - you attend 80% of the lectures, complete some of the assignments up through the end of the course, and get nearly half of the problems on the final exam correct.

**F**   
Normally, students that get an F simply stopped doing the required work at some point.

# Blackboard

The course has a blackboard site. Click [here](http://blackboard.indstate.edu) to go to blackboard. You should see this course listed under your courses for the current term.

# Academic Integrity

Follow the standard CS course policies in terms of what is and is not allowed on assignments: <http://cs.indstate.edu/info/policies.html>

Please ask the instructor if you have doubts about what is considered cheating in this course.

# Special Needs / Student Disabilities

Indiana State University recognizes that students with disabilities may have special needs that must be met to give them equal access to college programs and facilities. If you need course adaptations or accommodations because of a disability, please contact us as soon as possible in a confidential setting either after class or in my office. All conversations regarding your disability will be kept in strict confidence. Indiana State University's Student Support Services (SSS) office coordinates services for students with disabilities: documentation of a disability needs to be on file in that office before any accommodations can be provided. Student Support Services is located on the lower level of Normal Hall in the [Center for Student Success](http://www.indstate.edu/services/student-success/cfss) and can be contacted at 812-237-2700, or you can visit the ISU website under A-Z, [Disability Student Services](https://www.indstate.edu/services/student-success/cfss/student-support-services/disability-student-services) and submit a Contact Form. Appointments to discuss accommodations with SSS staff members are encouraged.

Once a faculty member is notified by Student Support Services that a student is qualified to receive academic accommodations, a faculty member is obligated to provide or allow a reasonable classroom accommodation under ADA.

**Statement on Discrimination, Sexual Harassment, and Sexual Misconduct**

Indiana State University [Policy 923](https://www.indstate.edu/policy-library/non-discrimination-and-anti-harassment) strictly prohibits discrimination on the basis of: age, disability, genetic information, national origin, pregnancy, race/color, religion, sex, gender identity or expression, sexual orientation, veteran status, or any other class protected by federal and state statutes in ISU programs and activities or that interferes with the educational or workplace environment.

Title IX of the Educational Amendments of 1972 prohibits discrimination based on sex, including sexual harassment. Sexual harassment includes quid pro quo harassment, unwelcome verbal or physical conduct, sexual assault, dating violence, domestic violence, and stalking.

If you witness or experience any forms of the above discrimination, you may report to:

Office: Equal Opportunity & Title IX; (812) 237-8954; Rankin Hall, Room 426

Email: [ISU-equalopportunity-titleix@mail.indstate.edu](mailto:ISU-equalopportunity-titleix@mail.indstate.edu)

Online: <https://cm.maxient.com/reportingform.php?IndianaStateUniv&layout_id=10>

Disclosures made to the following confidential campus resources will not be reported to the Office of Equal Opportunity and Title IX:

ISU Student Counseling Center: (812) 237-3939; Gillum Hall, 2nd Floor

Victim Advocate: (812) 237-3829; HMSU 7th Floor

UAP Clinic/ISU Health Center: (812) 237-3883; 567 N. 5th Street

**COVID syllabus language: revised 8/9/21, Faculty Senate**

Students are expected to adhere to course attendance policies, as stated in the course syllabus. Students must complete the Sycamore Symptom Assessment by email before arriving on campus each day unless they have documented their COVID immunization and have been exempted from the program. Documented COVID-related absences will be treated like any other serious medical issue. ​ Following University policy, students with a documented, serious medical issue must contact the Office of the Dean of Students for assistance. The Office of the Dean of Students will supply documentation for faculty. Students with a documented serious medical issue should not be penalized and will be given a reasonable chance to complete exams or assignments. Once notification is made, faculty will make reasonable efforts to accommodate the student’s absence and will communicate that accommodation directly to the student. Please note that faculty are not required to accommodate a serious medical issue with virtual content options, like streaming or recorded lectures. Students who have been notified by contact tracers of a close contact who has tested positive for COVID must abide by their instructions, which will include a mandatory period of quarantine, especially if the student is unvaccinated, and/or mandatory testing. To avoid the potential of missing significant class time, students are strongly encouraged to receive the COVID vaccination that has been made available on campus. For more information about the vaccines or to find a vaccination site, go to: [**ourshot.in.gov**](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Ft.e2ma.net%2Fclick%2Fvuh8wd%2Fvehpdpg%2Ff2kbah&data=04%7C01%7CR.b.Abhyankar%40indstate.edu%7Ca736de0ac18c4e69be6a08d95ce7029f%7C3eeabe396b1c4f95ae682fab18085f8d%7C0%7C0%7C637642969567699279%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=dDMvLJAbenE%2B8UdbJUZcbYUGV9ZD3S3eSxE%2Ba9uf7PI%3D&reserved=0). The [**ISU Health Center**](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Ft.e2ma.net%2Fclick%2Fvuh8wd%2Fvehpdpg%2Fvulbah&data=04%7C01%7CR.b.Abhyankar%40indstate.edu%7Ca736de0ac18c4e69be6a08d95ce7029f%7C3eeabe396b1c4f95ae682fab18085f8d%7C0%7C0%7C637642969567699279%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=0jAu3%2BFoFBrGVLZq3KJXS6nIPnMINWBbpZN57ceP31M%3D&reserved=0) also administers COVID-19 vaccines by appointment.

Students should contact the [Office of the Dean of Student](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Ft.e2ma.net%2Fclick%2Fvuh8wd%2Fvehpdpg%2Fbnmbah&data=04%7C01%7CR.b.Abhyankar%40indstate.edu%7Ca736de0ac18c4e69be6a08d95ce7029f%7C3eeabe396b1c4f95ae682fab18085f8d%7C0%7C0%7C637642969567709288%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=RpWh3sTnWq55syVjmJCTu6U5pV%2BrfztJRFFHKbTLskk%3D&reserved=0)**s** with questions by calling **812-237-3829**.

The information provided in this section of the syllabus is subject to modification based on guidance by public health authorities. Please follow [**this link**](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Ft.e2ma.net%2Fclick%2Fvuh8wd%2Fvehpdpg%2Frfnbah&data=04%7C01%7CR.b.Abhyankar%40indstate.edu%7Ca736de0ac18c4e69be6a08d95ce7029f%7C3eeabe396b1c4f95ae682fab18085f8d%7C0%7C0%7C637642969567719270%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=9%2BGK%2FtoL71OatxXDD3%2BCd0CcJxZ6inredKfLv7C3Ez8%3D&reserved=0) for updated information on ISU’s Fall 2021 requirements.