**Syllabus: Advanced Web Development**

Class time: Tuesday (7:00p – 9:40p)

Class room: YR 402

**Instructor**

Dr. Siddharth Kaza

Office: YR 469, Email: skaza@towson.edu (preferred contact), Phone: 410-704-6310

**Office hours**

Mo/We (11-12 noon) or by appointment

**Textbooks**

**Required:** Ruby et al.,[*Agile Web Development with Rails (for Rails 4)*,](https://www.pragprog.com/book/rails4/agile-web-development-with-rails-4) Fourth edition **Supplementary:** Thomas et al., [*Programming Ruby*](https://www.pragprog.com/book/ruby4/programming-ruby-1-9-2-0)

These books are available in PDF and hardcopy. Feel free to purchase whichever version you like. If you purchase the PDF, please respect all licenses and copyright regulations.

**Course description**

The development of advanced web-based systems involves challenges in software engineering, system architecture, database design, user interfaces, security, and web services. This course will describe both the theoretical background behind these issues and the practical challenges of system implementation. The [Ruby on Rails](http://www.rubyonrails.org) framework will be used for in-class demonstrations and for assignments. Comparable frameworks in platforms such as the Java 2 Enterprise Edition, .NET MVC or Django may be used for the project. Readings from current research and professional publications will inform discussions. Projects and assignments will involve the implementation, use, and evaluation of advanced web-based systems.

*Learning objectives*

* Understand the methodologies behind the development of large-scale web-based systems
* Design a large-scale web-based system using the Model-View-Controller paradigm and the Agile Software Development methodology
* Design and develop systems that uses the Ruby on Rails backend and provides a multi-device frontend

**Blackboard**

We will be using the Blackboard system (<http://bbweb.towson.edu>) as a course website for the archival of course documents, distribution and submission of assignments and exams, grade lists, and communication.

**Required software**

We will be using Ruby (2.x), Rails (4.x), SQLite 3, and Rubymine as the IDE. You are welcome to use another appropriate IDE (Eclipse, etc.) or text editor (sublime, etc.) if you wish. The instructions for installation can be found in the book and at <http://rubyonrails.org/>. I will also provide a Linux VM with the software installed. Plan to use that till you get an install working on your own machine.

**Course organization**

The course will consist of presentations from the instructor, inverted classroom exercises, coding demonstrations, in-class labs, student presentations and discussion, assignments, project, and one exam.

*Project*

A semester-long project is the focus of this course. These have to be done in groups of 3 people. The project will involve the development of a significantly large database-driven web application. A list of project ideas will be provided, but novel ideas are always welcome. Each project will include a proposal, several meetings with the instructor and a final presentation. More information on the projects is provided on the project page in blackboard. In developing the project, we will use the Agile development methodologies and version control.

*Programming assignments*

There will be 3-4 programming assignments

*Labs*

10 -12 labs will be completed in class or as inverted-classroom exercises

*Student presentations*

Each student will be expected to present a paper during the semester. The papers will be related to web development methodologies, current practices, and future promising technologies.

The presenter will summarize the paper (using slides or other aids), and bring in knowledge from other courses on the paper topic. Each presentation will be a max of 15 minutes.

These presentations will be based on assigned readings, or on other relevant topics of your choice (subject to the instructor’s approval). A schedule and suggestions/topic assignments will be done after the first class meeting. Students not presenting in class **should read the paper** and be prepared to comment on the topic being presented – **class participation will be required and graded**. The readings to be presented are available on blackboard.

**Policies**

* Class attendance and participation are crucial, if you plan to miss more than a class due to unavoidable reasons then the instructor needs to be informed.
* Cheating in any form is not tolerated at Towson University. **Cheating and plagiarism can and will result in a penalty from 0 points in the assignment** to an ‘F’ grade in the course along with other administrative penalties. You will be penalized if you copy or you let your work be copied. That said, you can feel free to discuss assignment questions with others, and you may need to work in teams at some point, but the final assignments and the exams must be your own work.
* University policy states that students may not repeat a course more than once without prior permission of the Academic Standards Committee.
* If you may need an accommodation due to a disability please contact me privately to discuss your specific needs. A memo from Disability Support Services (DSS) authorizing your accommodation will be needed.
* The instructor reserves the right to modify the course structure and policies according to student needs.

**Evaluation and grading policy**

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| Class presentation - 5%  Participation - 5%  Assignments & Labs– 25%  Exam – 30%  Project – 35% | **A:** 93-100 **A-:** 90-92.9  **B+:** 87-89.9 **B:** 80-86.9  **C:** 70-79.9  **F:** < 70 |
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