

## Welcome to SENG 480B / CSC 485B / CSC 586B Self-Adaptive and Self-Managing Systems

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<http://courses.seng.uvic.ca/courses/2013/summer/seng/480b>  
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<http://courses.seng.uvic.ca/courses/2013/summer/csc/586b>

## Announcements

- Thu, May 30
  - Assignment 1 due
  - Presentations of Part III after break
- Fri, May 31
  - Assignment 2 handed out
- Mon, June 3 – Tue, June 11 (inclusive)
  - Congress of the Humanities and Social Sciences
  - No classes
- Fri, June 28
  - Midterm in class

<http://uviccongress2013.ca/>



## Assignment 2 Instructions

### Due Date

Thursday, June 20, 2013 (i.e., Friday before 1 am)

### Objectives

- Introduction to autonomic systems
- Introduction to autonomic elements
- Introduction to autonomic managers and resource management
- Introduction to autonomic policies
- Introduction to feedback systems
- Design, implementation, and simulation of autonomic elements

### Instructions

This assignment consists of two parts. In Part I you are to design an autonomic element to control a managed element of your choice. In Part II you are to implement a policy-driven autonomic manager and its managed resource.

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## Assignment 2 Part I

### Part I

In Part I you are to define a policy for an autonomic element. Choose a managed resource and design a policy for its management. For the managed resource you may choose to implement a simple web server, web crawler, background service, or any other resource. Design an autonomic manager to implement monitoring, analysis, planning, and execution engines including a knowledge base to store and share information to realize this policy.

- Choose and describe a managed resource. Describe the model, properties, sensors, and effectors of your managed resource in great detail.
- Choose and define a policy for an autonomic element to govern the chosen managed resource.
- Specify the events to be exchanged across the manageability interface.
- Design a four-stage autonomic manager to realize this policy.
- Specify the information to be stored in the knowledge base.
- Describe the feedback system you designed using the terminology used for Part I of Assignment 1

Do not copy verbatim from any source. Cite your sources.

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## Assignment 2 Part II (Groups)

### Part II - Group Project (3-4 people per group)

In Part II you are to implement an autonomic element consisting of the managed resource of your choice and an autonomic manager governed by a policy.

- Implement the managed resource you have chosen.
- Implement an autonomic manager to manage the resource. Code the four phases of the the MAPE-K loop and the knowledge as separate components. Make sure that the documents exchanged among the components are well defined.
- Implement a manageability interface to close the feedback loop between the managed resource and the autonomic manager.
- Make the autonomic manager policy driven.
- Demonstrate that your implementation is compliant with respect to the your chosen policy.
- Document the design and implementation of your project.

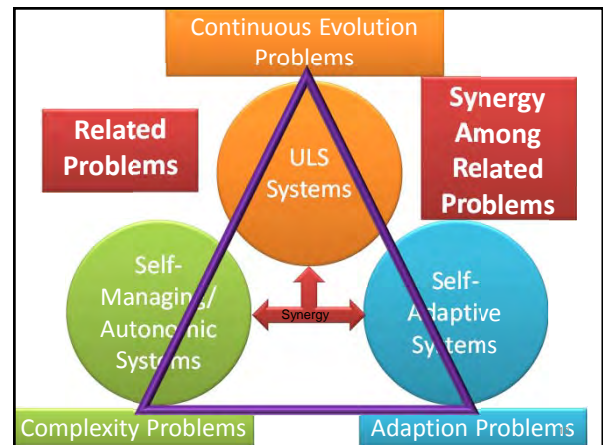
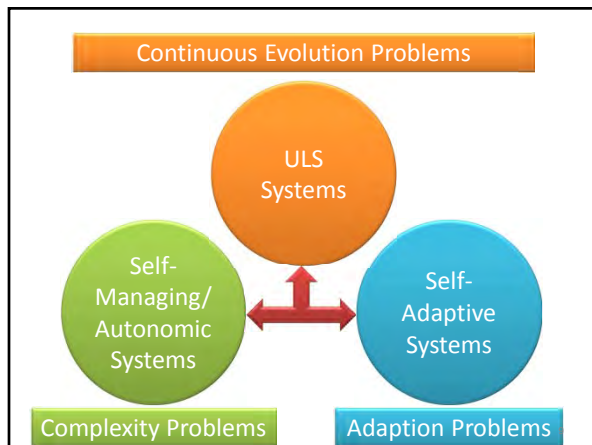
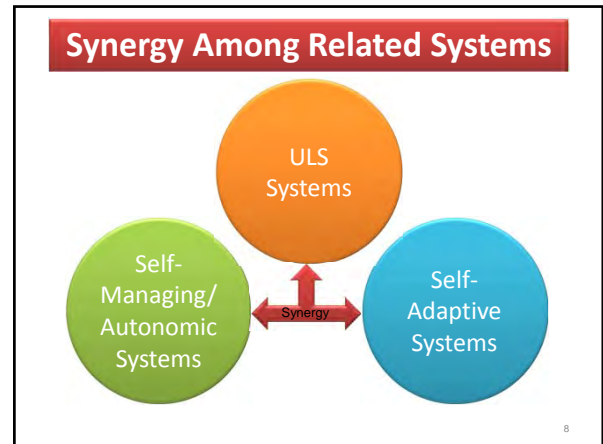
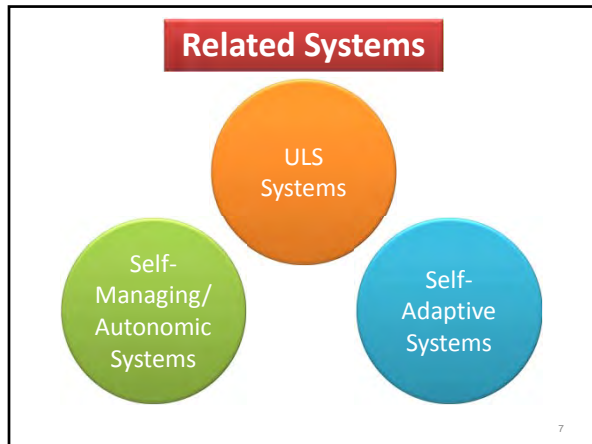
Do not copy verbatim from any source. Cite your sources.

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## Reading Assignments Autonomic Computing

- Kephart, J.O., Chess, D.M.: The Vision of Autonomic Computing. IEEE Computer 36(1):41-50 (2003)
- IBM Corp.: An Architectural Blueprint for Autonomic Computing, Fourth Edition (2006)  
<http://people.cs.kuleuven.be/~danny.weyns/csds/IBM06.pdf>
- Kluth, A.: Information Technology: Make It Simple. The Economist (2004)  
[http://www.economist.com/surveys/displaystory.cfm?story\\_id=E1\\_P\\_DSPGP&CFID=17609242&CFTOKEN=84287974](http://www.economist.com/surveys/displaystory.cfm?story_id=E1_P_DSPGP&CFID=17609242&CFTOKEN=84287974)

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## The Continuous Evolution Problem

Devices, environments, infrastructure, web,  
services, business goals, user expectations, ...

**all evolve over time**

all evolve over time

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