ET 438a
Automatic Control Systems Technology

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Office: Engineering D110
        Phone: 453-7839
        E-mail: powerguy@siu.edu

Office Hours: 10:00 am - 10:50 am M-W-F
              2:00 pm - 3:00 pm M-W-F
              Or by appointment


Grading Scale:  

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tr>
<td>100-90%</td>
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<td>89-80%</td>
<td>B</td>
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<td>79-70%</td>
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<td>69-60%</td>
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<td>59-below</td>
<td>F</td>
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</tbody>
</table>

Hour Exams (3 at 100 points each) 45%
Final Exam (200 points) 20%
Homework 5%
Lesson Quizzes (Desire To Learn D2L) 10%
Laboratory Experiments/Activities 20%

Total 100%

Note: the final exam is optional for all students that have a 90% or higher average on the hour exams, homework, and experiment/activities
Course Policies

1. **Late Work and Makeup Exams**
   No make-up exams. All homework handed in at the beginning of the period it is due. No late homework accepted. Late lab grades will be reduced by 5% per working day starting from due date.

2. **Attendance Policies**
   Class attendance is required and attendance will be taken at the beginning of every period. Students are allowed four unexcused absences. Any further absences will reduce the TOTAL grade by 5% per day absent.

3. **Cell Phone/Electronic Device Usage**
   Cell phone usage during meeting periods is prohibited. Devices should be TURNED OFF prior to entering class. Other electronics devices (Tablets, iPads, Readers etc) are only allowed for academic/research purposes. No electronic devices other than calculators are allowed during exams. Those violating this policy are subject to disciplinary action under the Student Conduct Code. Follow this link to review this code: [http://policies.siuc.edu/policies/conduct.html](http://policies.siuc.edu/policies/conduct.html)

4. **Nicotine Consumption**
   No use of electronic cigarettes during class.

**Final Exam Scheduling Policy**

The course final exam is comprehensive. The course instructor will give the exam during finals week at the time and place prescribed by the University in its final exam schedule. The final will take place in the normal lecture room.

**Course Description and Prerequisites**

This course covers the fundamental concepts and tools used to model and design continuous automatic control systems. Mathematical models for electric, hydraulic, and thermal process systems are examined. The Laplace transform, transfer function, block diagram and signal flow graph are applied to the modeled systems to determine the system response and design stable control systems. Computer implementations of graphical analysis and design techniques are covered. These methods include root locus, and frequency response methods. A laboratory demonstrates practical applications of measurement and control.

Prerequisite: Engineering Technology 304b or concurrent enrollment.
Course Content Overview

This course is an introduction to the operation and design of continuous signal control systems. Continuous signals are also called analog signals. Analog signals are continuous functions of time. Sampled, also called digital, control uses signals that are a series of samples of continuous signals. This course will focus on the analog systems modeling and design.

The basic parts of an analog control system will be identified. Different methods for controlling an analog control system will be examined. The methods of representing physical systems as mathematical models will be covered. Once a real system is modeled, design techniques can be used to develop responsive, stable controls for the actual system.

A continuous control system uses some type of sensor to measure the process that requires control. This measurement is input to a controller that decides the amount of corrective action, if any, that must be applied to the process. The corrective action signal is transmitted to an actuator.

This device causes the changes in process. The effective design of these types of systems requires:

- Measurement of the process variables
- A mathematical model of the process
- Selection and modeling of the controller
- Determining combined controller and process response by using a
  Analog electronic implementation of the controller design

This course will cover the concepts and tools that make these designs possible.

Course Objectives

At the end of this course, you will be able to:
1.) Identify the components of a typical single-input single-output automatic control system.
2.) Distinguish between an open-loop and a closed loop control system.
3.) Use analog OP AMP circuits to scale linear sensor signals.
4.) Develop and use mathematical models of simple mechanical, thermal, and electrical systems.
ET 438a
Automatic Control Systems Technology

5.) Identify linear ordinary differential equations and explain how their solutions differ from algebraic equations.
6.) Use a differential equation to model dynamic response in a simple system.
7.) Use the Laplace transform to solve first and second order differential equations.
8.) Use transfer functions and signal flow block diagrams to represent control systems.
9.) Identify the three modes of analog control: proportional, derivative, and integral and explain how each impacts system performance.
10.) Develop analog circuits using OP AMP’s that realize the control modes.
11.) Identify stability conditions of an analog control system using the transfer function model.
12.) Identify the stability conditions of an analog control system using Bode plots. Use Nyquist plots to determine control system stability.
13.) Use the Routh-Hurwitz Criteria to identify stable control system operation.
14.) Design negative feedback control circuits for dc motor speed regulation using analog devices.

Others Helpful Information

All members of the faculty and staff of SIUC are here to help you as you begin this course and all others on your schedule this semester. Attached to this syllabus is a summary sheet that includes all the important dates and other valuable information to help you succeed during your academic career at SIUC. Please feel free to communicate with the course instructor and any other staff of the Department of Technology if you have any problems and concerns. Good luck this semester.
# ET 438a
## Continuous and Digital Control Systems
### Course Outline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Source</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction to Automatic Controls</strong></td>
<td>Johnson Handout</td>
<td>Sections 1.1 -1.4</td>
</tr>
<tr>
<td>Process control principles</td>
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<td>Process control block diagrams</td>
<td></td>
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<td>Evaluation of system performance</td>
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<tr>
<td><strong>Review of OP AMPS</strong></td>
<td>Class notes</td>
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<tr>
<td>Scaling of sensor signals using OP AMPS</td>
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<tr>
<td><strong>Open loop systems</strong></td>
<td>Bateson</td>
<td>Sections 1.1-1.4</td>
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<tr>
<td><strong>Closed loop systems</strong></td>
<td>Bateson</td>
<td>Sections 3.1-3.3</td>
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<td><strong>Modeling Physical Systems</strong></td>
<td>Bateman</td>
<td>Sections 3.5-3.6</td>
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<td>Models of Mechanical Systems</td>
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<td>Thermal</td>
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<tr>
<td>Mechanical</td>
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<tr>
<td><strong>Proportional Control Mode</strong></td>
<td>Johnson Handout</td>
<td>Class notes</td>
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<td>Model of proportional control mode</td>
<td>Bateman</td>
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<tr>
<td>Proportional bandwidth</td>
<td>Bateman</td>
<td>pp. 467-473</td>
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<tr>
<td>Steady-state error of proportional control</td>
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<tr>
<td>Practical realization of proportional control</td>
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<td><strong>Transfer Function Models</strong></td>
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<td>Mathematical Models of Systems</td>
<td>Chapter 4</td>
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<td>Self-regulating tanks</td>
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<td>Non-regulating tanks</td>
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<td>R-C circuits</td>
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<td>Liquid-filled Thermometers</td>
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<td>Control Valves</td>
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<td>Laplace theorems</td>
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<td>Finding inverse Laplace transforms</td>
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**TEST 1**
Transfer Function Models (cont.)

Transfer Functions and Block Diagrams
  Finding transfer functions
  Block diagram simplifications
  Bode Plots of transfer functions
  DC motor block diagram
  Introduction to Matlab control toolbox

Control of Continuous Processes

Modes of control
  Proportional
    Time and frequency response
    Transfer function
  Integral
    Time and frequency response
    Transfer function
  Derivative
    Time and frequency response
    Transfer function
  Proportional plus integral control
    Time and frequency response
    Transfer function
  Proportional Plus Derivative Control
    Time and frequency response
    Transfer function
  Proportional plus Integral Plus Derivative Control (PID)
    Time and frequency response
    Transfer function
  Practical Circuit realizations of control modes

Analysis and Design of Systems

Process characteristics
  Integral processes
  First order lag process
  Second order lag process
  Dead-time process

Methods of Analysis
  Bode plots of transfer functions
  Open-loop bode plots

TEST 2

Section 13.1, Section 13.2
pp. 467-486
Section 13.3

Bateman
Chapter 14

Bateman
Chapter 15
Method of Analysis (cont.)
Closed-loop bode plots
Error ratio and deviation ratio
Generating Bode plots with Matlab
Bode stability criteria
Nyquist stability criteria
Routh-Hurwitz Criteria

Class Handouts

Class notes

Test 3

Course Review

Final Exam
## ET 438a
### Homework Listing

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Lesson Number</th>
<th>Problems</th>
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<td><strong>Book Chapter 1</strong></td>
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<td>1</td>
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*Homeworks listed in this format are on handouts.*
<table>
<thead>
<tr>
<th>Book Chapter 14</th>
<th>Lesson Number</th>
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<tr>
<td>34</td>
<td>23</td>
<td>14.27, 14.28, 14.31 Bateson</td>
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</table>
1.1 Sample Homework Format
Always use engineering paper unless otherwise instructed

- Include Problem Numbers

Transcribe all key values here with units:

\[ R = 10 \, \Omega \]
\[ V = 100 \, V \]
\[ I = 3 \, A \]

Include sketches of Schematic with values if useful

b.) Label Subsections of problem

Include enough work so that grader can follow logic

Answers with no support or invalid support receive no credit

\[ E_a = V_T - I_a R_a \]
\[ E_a = 120 \, V - 3 \, A \times 0.15 \, \Omega \]
\[ E_a = 119.2 \, V \]

Box final answer

Staple multiple pages. Unstapled work not accepted

Pencil is better than ink for problem solutions

Organize work in logical way. This helps graders follow work and promotes maximum points for partial credit

Use lecture examples as guides for proper layout
1.) Analog Sensor Signal Conditioning
Use analog OP AMP circuits to scale the output of a sensor to signal levels commonly found in practical control systems. To use OP AMP analog circuits to combine several simulated sensor inputs according to a predefined input signal formula. Produce an error signal using an OP AMP differential amplifier. (3 periods)

2.) Proportional Control Action
Construct a proportional controller using OP AMP circuits and measure its steady state and transient response. View the response of a first order process to proportional control action. (3 periods)

3.) Introduction to Control System Modeling with Matlab/Simulink
This laboratory introduces the Matlab/Simulink programming and numerical simulation software. Learn how to generate frequency response and time plot common to control systems analysis and design. These include Bode plots and unit step response. Create basic open loop and closed loop block diagram systems using Simulink and find their response using numerical methods that plot the response as graphs. (1 period)

4.) Modeling Control Systems Using Matlab/Simulink
This lab uses Matlab/Simulink software to model an antenna positioning system. Students develop the transfer function blocks from component parameters and construct the block diagram in Simulink. Observe the results of step input changes and external disturbances on the control performance using various types of control action. (1 period)

5.) Motor-Generator Speed Control Using Proportional and Proportional/Integral Controllers
Design and test a feedback control system that regulates the speed of a motor generator system. A dc tachogenerator measures the speed of the motor-generator system. Build a proportional controller using OP AMPS to control the motor speed as the generator load changes. Design a proportional-integral controller using OP AMPS. Compare the performance of the two systems. (4 periods)
ET 438A
Lab Report Grading and Attendance Policies

Grading
The following table shows the point distribution and items that will be graded in the ET 438A lab report. If all listed items are included and correct then the maximum grade is received.

Late labs will have the point totals reduced by 5 pts per working day. After one week, late labs will not be accepted.

Attendance
Students are expected to be seated in the lab at the scheduled starting time. An attendance sheet will be circulated at the beginning of the lab period. Everyone is responsible for signing this sheet. Anyone failing the sign the sheet will be counted absent. The lab and lecture absences are combined for the course total. The fifth unexcused absence will result in overall grade reduction. The T.A. will be available outside the lab period to sign off on results if necessary.

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Title page</td>
<td>2 pts</td>
<td>Title page must follow the given format exactly to receive credit. See the example attached example. Other examples are available from Lab T.A.</td>
</tr>
<tr>
<td>Table of Contents / Equipment List</td>
<td>2 pts</td>
<td>Table of contents should be numbered correctly to match the pages in the report. The equipment list should include the manufacturer, model number, and SIU number of the instruments used. No parts list is necessary.</td>
</tr>
<tr>
<td>Experimental Objective</td>
<td>6 pts</td>
<td>The purpose for conducting this experiment and designing the circuits must be identified. Use the lab handout as a guide.</td>
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</tbody>
</table>
| Theory of Operation and Discussion of Design. | 30 pts | This section should include the background theory for the experimental circuit operation. It should also discuss supporting theoretical topics that explain what should happen in the system or circuit design. When a circuit design is required in a lab, it should be explained in detail with the function of each stage and its supporting components given.

A schematic of the overall design should be provided in this section. All passive components (resistors, capacitor, potentiometers etc) should have values and identifiers. (R₁, C₂ e.g.) All active components, IC, transistors, and diodes, must be labeled also. The power supply values must be given.

The schematic should have a figure number or page number depending on its size. Refer to the schematic when explaining the design of the circuit. |
| Discussion of Design / Results      | 30 pts | This section contains the collected experimental data and results that demonstrate the performance of the designed circuit or system. The readings and observations made in the performance of the lab should be included here. All measurements must be clearly organized into tables. Each table must have a table number and title. Refer to the table number when explaining the results of the experiment (See table 1 e.g.). Use Excel to create tables and do repeated calculations. Sample calculations should be included in the appendix.

This section should address errors that may occur in the lab. Compare and contrast the measurements with the theory of operation. Read the lab carefully for other required discussion points. Example: what was the effect of increasing controller gain on system performance. |
| Conclusion                          | 20 pts | The conclusion should summarize the overall operation of the system or design presented in the lab. It should highlight trends and relationships between variables. This section should only be 1 or 2 paragraphs long (100-200 words) |
| Appendix                            | 10 pts | This section should have a separator page with the word Appendix centered between top and bottom margins. It should include, at the minimum, the signed data sheets from the lab. Also included in the section are sample calculations and other formulas necessary for the completion of the lab design. The first page of the appendix should have a consecutive page number. |
ET 438a
Automatic Control Systems Technology
Laboratory Report Format

Each student will write a laboratory report that documents the results of the experimental and design work that was performed in the laboratory. All parts of the report should be original work by each student. This includes the text, graphs, and schematics that are used to display the data and designs of the laboratory. Absolutely no photocopies of any original work in the body of report are allowed. Duplicates are allowed of manufactures data sheets and other reference materials that are included in the appendix of the report.

The purpose of writing an individual experimental report is to have each person develop the skills necessary to organize and present technical material in a professional manner. This includes using software tools such as spreadsheets, electronics simulation tools, and schematic drawing applications. Each person in a group should work with these tools to get valuable experience that can be used on the job. If projects and experiments are done in groups, sharing of the effort for producing the graphs and schematics is allowed, but each person in a group should submit final drawings and graphs that have layouts and structure that makes them unique. Failure to follow these guidelines will result in loss of points.

The report format for this course will be similar to those of other technical courses that require lab. These reports give students experience in organizing technical material for presentation, writing in a technical style, and using hardware and software tools to find solutions to engineering problems. Being able to communicate effectively in a written report is a valuable skill that most engineering and technology students find difficult to master. Employers place a high value on technical employees that can write effectively and organize their work for presentation in an effective way.

The following sections give general guidelines for the structure of the reports in this course. There may be further instructions and format detail given when the laboratory meets for the first time.

Each report will have the following parts:
- Cover page
- Table of contents/equipment list
- Body
- Appendix

An example cover page is attached to this document. Follow the format of this page. Keep it plain and try to space it like the example given. The table of contents and equipment list are done on separate pages. Most word processors have the ability to generate the table of contents automatically. Use this feature to generate accurate and professionally formatted table of contents pages.
The body of the report will be divided into the following sections:

1.) Experimental objectives  
2.) Results of laboratory experiment  
3.) Discussion of concepts covered in the lab  
4.) Conclusion

The important information in a laboratory report is contained in the body. The body contains the theory and design information used in the project/lab, a discussion of the results of the testing, graphs, schematics, block diagrams and other items that may be used to document the work. The requirements for these items will be given below.

For the reports in this class, the first section in the body is the laboratory objectives. This can be as short as a single sentence or be several paragraphs in length. The objective defines the purpose of the experiment and what the desired outcomes should be.

The second section of a technical report is usually the data collected in the experiment. Any graphs or numerical results are reported here also. The graphs can be cut and pasted into the report from other computer applications.

The third section of the report is the discussion of the data. For this course, discuss how the theory from the lecture is supported or refuted by the lab results. Discuss the theoretical basis of what is being shown in the results that were compiled in the data section. In general, try to describe the knowledge that you gained from performing the experiment. Discuss how well the results match the theoretical values.

The final section is the conclusion. In business, this may be the only section that a manager may read. The conclusion should summarize the major points that are taken from the performed work. Emphasize the major findings from the data that was collected. In the case of the software labs, discuss what the simulations show and how they relate to the theory presented in the class.

The appendix in technical reports contains the original data and example calculations. In some cases extended mathematical details or supporting theory is placed in the appendix. An appendix in not used in all technical reports, but may be useful in some cases. It is a good place to present component data sheets, computer program code, and mathematical details that are not directly related to the final results.
General Layout and Technical Report Do's and Don't

Page format

Margins: 1 in.
Font: no greater than 12 point
Page numbers: bottom center of each page. Omit on cover page

Do's

Include a figure number and caption for each figure included in a report.

Label each axis and title all graphs included in a report.

Include units on each axis.

Refer to graphs and figures in text if you include a figure or graph

Spell check the report before you print out the report and hand it in

Proof read the report before you hand it in.

Place data in tables and title the tables. If several tables are included, number the tables.

Write in short, clear sentences.

Try to organize the information that you want to discuss before you start writing the report. A short outline on scratch paper is not a bad idea.

You should place large amounts of data and long calculations in the appendix. Refer the reader to the appendix.

Do nots

When using software to graph experimental data points, do not turn the graph into a "connect-the-dots" plot. Graphs of experimental data should be smooth curves. Use curve-fitting techniques to get best approximation.

Do not use contractions in a formal technical report

Do not allow more that one idea to get into a sentence. Shorter sentences are easier to understand.
Do not place a graph or figure in a report that is not referenced in the body of the report.

Do not attempt to make the report longer by padding it with information that is not related to the objectives of the experiment. Professional reports are concise.

Do not make the report too short. Do discuss the main theoretical points and how they relate to the results.
Southern Illinois University at Carbondale
College of Engineering
Department of Technology

ET 438a
Automatic Control Systems Technology

Experiment #

Experiment Title

Reported by: name of student

Performed By: Student name 1
Student name 2
Student name 3

Date Performed:
Laboratory Design and Construction Tips

**Design**

1.) Designs are open-ended problems so there is no one correct answer for the design other than it performs as specified. This usually means that there are more unknowns than knows in the design formulas. Pick some reasonable values for some of these unknowns and solve for the others. Select the values based on parts availability, design criteria and simplicity.

2.) Try to break the design task down into functional stages. Drawing block diagrams of large, complex systems is a good way to visualize the overall problem. After defining the stages, find circuits that perform the necessary functions of each block.

3.) Check designs with simulation programs if possible before construction. Circuitmaker, Pspice, Multisim, and Electronics Workbench are examples of simulation programs used to check electronic designs before prototyping begins. Student versions of all these programs are available at low or no cost.

4.) Construct and test the design on stage at a time. Compare actual outputs to theoretical outputs and look for major discrepancies. Small errors, (10-15% maximum are expected in most circuit designs. Anything above this range is a circuit problem that requires troubleshooting.

**Troubleshooting**

1.) Make sure that all test instruments and power supplies are calibrated and working correctly before using them. Make sure you are using the test instruments correctly. Get more instruction on instrument usage if necessary.

2.) Make sure that the breadboard is not defective. Using large wire will stretch the connectors and cause future connection problems. (AWG 22 maximum)

3.) Check all IC’s for proper power supply and ground connections on the chip pins.

4.) Check for correct signal inputs on the chip.

5.) Check for known values at intermediate points in each chips wiring. (e.g. The voltage between OP AMP inputs should be zero.)

6.) Check all ground points with a voltmeter. All grounds should be at the same potential. (0 V)

7.) Isolate multistage circuits and test them individually. A more efficient way to isolate the problem is to break the circuit in two and then inject test signals into each half. Check for correct outputs on both halves. Continue splitting and testing until the problem is isolated to a single stage.
IMPORTANT DATES *

Semester Class Begins: ...............................08/22/2016
Last day to add full-term course (without Dean’s signature): 08/28/2016
Last day to withdraw from the University with a full refund: ........09/02/2016
Last day to drop a full-term course for a credit/refund: ............09/04/2016
Deadline to apply to graduate at the end of this term: ...........09/16/2016
Last day to drop a full-term course (W grade, no refund): ........10/30/2016
Final examinations: ......................................12/12-12/16/2016
Commencement: ...........................................12/17/2016

Note: For more detailed information on the above deadlines, please visit http://registrar.siu.edu/calendars. For add/drop dates that apply to shorter-than-full-term courses, please look at the Schedule of Classes search results at http://registrar.siu.edu/schedclass/index.html.

FALL SEMESTER HOLIDAYS
Labor Day Holiday 09/05/2016
Fall Break 10/08—10/11/2016
Veterans Day Holiday 11/11/2016

WITHDRAWAL POLICY ~ Undergraduate only
Students who officially register for a session must officially withdraw from that registration in a timely manner to avoid being charged as well as receiving a failing grade for those classes. An official withdrawal must be initiated by the student, or on behalf of the student through the academic unit, and be processed by the Registrar’s office. For the proper procedures to follow when dropping courses and when withdrawing from SIU visit: http://registrar.siu.edu/students/withdraw.html

INCOMPLETE POLICY ~ Undergraduate only
An INC grade may be assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments for the course. An INC must be changed to a completed grade within one full semester (undergraduates), and one full year (graduate students), from the close of the term in which the course was taken or graduation, whichever occurs first. Should the student fail to complete the remaining course requirements within the time period designated, the incomplete will be converted to a grade of F and such grade will be computed in the student's grade point average. For more information visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit more than once. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Effective for courses taken Summer 2013 or later, only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned.

This policy will be applied to all transferrable credit in that only the last grade will be used to calculate grade point average. Only those courses taken at the same institution are considered repeats under this policy. See full policy at http://registrar.siu.edu/students/repeatclasses.html

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please refer to the graduate catalog at http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must contact DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM
Student Conduct Code http://srr.siu.edu/student_conduct_code/

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender are a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For more information, contact DSS at 618-453-1281, email siusiucares@siu.edu, or visit the SalukiCares website at http://salukicares.siu.edu/index.html

SIU’s EARLY WARNING INTERVENTION PROGRAM (EWIP)
Students enrolled in courses participating in SIU’s Early Warning Intervention Program might be contacted by University staff during a semester. More information can be found at the Early Warning Intervention Program webpage: http://corecurriculum.siu.edu/program-overview/

EMERGENCY PROCEDURES
We ask that you become familiar with Emergency Preparedness @ SIU. Emergency response information is available on posters in buildings on campus, on the Emergency Preparedness @ SIU website, and through text and email alerts. To register for alerts visit: http://emergency.siu.edu/

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and in the community. To find more information please visit the Center for Learning and Support Services website:

Tutoring: http://tutoring.siu.edu/
Math Labs http://math.siu.edu/courses/course-help.php
WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit:

http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

MILITARY COMMUNITY
There are complexities of being a member of the military community and also a student. Drill schedules, calls to active duty, complications with GI Bill disbursement, and other unforeseen military and veteran related developments can complicate academic life. If you are a member of the military community and in need of accommodations please visit Veterans Services at http://veterans.siu.edu/

Additional Resources:
ADVISEMENT: http://advisement.siu.edu/
SIU ONLINE: http://online.siu.edu/
SALUKINET: https://salukinet.siu.edu/
MORRIS LIBRARY HOURS: http://www.lib.siu.edu/

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