**CS-418 L01 – Operating Systems**

**Homework 3 – Process Sync**

**Points: 75**

**Experimenting with Process Synchronization**

***Requirement***

*Build the philosopher program, run strace, save the output in a text file.*

***Deliverables***

1. Strace output of philosopher program.
2. Provide answers to the questions in Parts 1 and 2.
3. Please submit only one file containing the contents from both Parts 1 & 2.

***Procedure***

/\* Get the **Hw 3 files** \*/

# Part 1

# Build and run the philosopher program. If you get some syntax errors, you’ll need to do some research in order to resolve them. The program itself is fine – any errors you receive are due to how you are attempting to compile it.

# Explain the program in the context of the dining philosopher’s problem.

# What is the role that semaphores in the program? How are they used and why?

# Explain the critical section.

# Run strace against the philosopher program.

# From Part 2, indicate which system calls are seen in the strace output and explain what they do.

Part 2

Provide definitions for the following terms (you may use the man pages; ex., from the command line “man sem\_init”).

1. futex
2. clone
3. set\_tid\_address
4. set\_robust\_list
5. sem\_wait
6. sem\_post
7. pthread\_exit
8. sem\_init
9. pthread\_create
10. pthread\_join
11. sem\_destroy
12. getrlimit

/\* See ***Deliverables*** above for what to submit for this assignment \*/