**Proposal and APPROVAL FORM**

**Department of Computer Science**

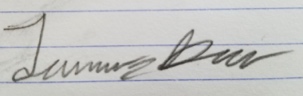
**Independent Study**

**SELECT ONE: CS 4395\_\_\_X\_\_\_ CS 5395\_\_\_\_\_\_**

**Date**: 8/17/2016

**Semester:** Fall 2016

**Student Name**: Tanner Burns

**Student ID:** A04368876

**Student Signature:** \_

**Instructor Name**: Dr. Qijun Gu

**Instructor Signature:**

* Is your Independent Study topic covered in the department’s regular curriculum?
  + Yes \_\_\_\_\_\_\_ No \_\_\_X\_\_\_\_\_

**Complete the following items in detail:**

* + - **Objective of the study**

The objective of this independent study is to develop security competition(referred as capture the flag) challenges, develop a security competition platform, and deploy the CTF challenges in the platform.

The overall goal of this study is to make suitable CTF challenges in a platform available for students to learn from. This includes setting up, hosting, and maintaining a platform for others to use to expand their knowledge on computer security. I will mainly organize the cryptography and coding categories of this platform. This will include easy and medium problems for others to solve to help understand computer security.

* + - **Materials covered/Justification**

The materials that will be covered include (i) security coding and cryptography and (ii) a few well-known open source CTF platforms. Each of these CTF challenge categories is worthy of have challenges to learn from. They are all different from one another and present different types of computer security.

The training platform will be built on the open source CTF platforms, and host all of these problems with multiple of each of those categories. Each category will have multiple problems of different difficulty, which will allow others to fully get a grasp of each of these important categories in computer security.

* + - **Course outline/milestones**

Week 1 – 2: study and compare a set of selected platforms and choose the most suitable platform for development and deployment.

Week 3 – 6: develop and deploy security coding challenges.

Week 7 – 10: develop and deploy cryptography challenges.

Week 11-12: test the platform and the challenges.

Week 13-14: complete documents.

Week 15-16: open and demonstrate the platform.

* + - **Outcome/assessment**

The outcome of this independent study is to have a better understanding of computer security and what the important categories for computer security are. Then, to understand cryptography and coding to be able to create problems to help others learn these categories as well. The platform will then help train others with all the important categories that are relevant in computer security.

**Chair Name: Dr. Hongchi Shi**

Chair Signature: Date:

NOTE: The deadline for registration for Independent Study project is a week before the first day of class in a particular semester. To allow sufficient time for timely student registration, approved Independent Study Proposal and APPROVAL Form must be submitted no later than a week before the first day of class.