### Course Approval Form

**Action Requested:**
- [x] Modify existing course (check all that apply)
- [ ] Title
- [ ] Prereq/coreq
- [ ] Schedule Type
- [ ] Restrictions
- [ ] Grade Type
- [ ] Repeat Status
- [ ] Delete existing course

**Course Level:**
- [x] Graduate

**College/School:**
- CSI

**Department:**
- CDS

**Submitted by:**
- Jason Kinser

**Subject Code:**
- CSI

**Number:**
- 758

**Effective Term:**
- Fall
- Spring
- Year 2016

**Title:**
- Visualization and Modeling of Complex Systems

**Credits:**
- Fixed 3

**Repeat Status:**
- Not Repeatable (NR)
- Repeatable within degree (RD)
- Repeatable within term (RT)

**Grade Mode:**
- Regular (A, B, C, etc.)

**Schedule Type Code(s):**
- Lecture (LEC)
- Lab (LAB)
- Recitation (RCT)
- Internship (INT)

**Prerequisite(s):**
- CSI 500 or instructors approval

**Corequisite(s):**

**Special Instructions:**

**Instructional Mode:**
- 100% face-to-face
- Hybrid: ≤ 50% electronically delivered
- 100% electronically delivered

**Are there equivalent course(s)?**
- Yes [x] No

**Catalog Copy for NEW Courses Only** (Consult University Catalog for models)

<table>
<thead>
<tr>
<th>Description (No more than 60 words, use verb phrases and present tense)</th>
<th>Notes (List additional information for the course)</th>
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</table>

**Indicate number of contact hours:**

- Hours of Lecture or Seminar per week: 
- Hours of Lab or Studio: 

**When Offered:**
- Fall 
- Summer 
- Spring

### Approval Signatures

- Department Approval Date
- College/School Approval Date

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.
<table>
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<tr>
<th>Graduate Council Member</th>
<th>Provost Office</th>
<th>Graduate Council Approval Date</th>
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For Registrar Office’s Use Only:  Banner_ ____________________________ Catalog ____________________________

rev 2/10
Previous Description of CSI 758

Covers elements of modeling and analysis of Earth and space sciences data and systems. Concentrates on sample projects and student-initiated projects to use visualization and graphical analysis techniques as they apply to modeling of complex data sets and systems. Uses several different analysis and visualization packages. Spacecraft data sets from the Naval Research Laboratory (NRL) Backgrounds Data Center and other NRL data sets are available for course projects; perusal of web data sets also possible. Modeling and analysis accompanied by appropriate readings from current literature.

Proposed Description

Covers elements of modeling and analysis for scientific applications. Concentrates on sample projects and student-initiated projects to use visualization, image and graphical analysis as they apply to modeling of complex data sets and systems. Reviews methods of creating and generating analysis and visualization packages. Data sets from multiple sources will be used. Modeling and analysis accompanied by appropriate readings from current literature.

Justification

Methods of modeling and analysis are rapidly changing in this era of “big data.” It is necessary, therefore, to keep pace with this evolving field and offer students the ability to prosper in these areas. The original course description was developed with a particular scientific field in mind. As the Computational and Data Sciences department evolves it is necessary to modify some courses to be more amenable to the talent structure that employers seek. Towards this goal the proposed change relaxes the restrictive nature of the previous course to include modeling and analysis of various types of data rather than a restriction to a single type.