1. Offices/Departments/Centers/Institutes (Non Degree-Granting) Identification & Executive Summary

Identification and Executive Summary

Official Name: Computational Science Minor

Official name of the unit and the mission or purpose statement of the unit
NAME: Computational Science Minor
MISSION: Computational Science is an interdisciplinary field of study at the intersection of applied mathematics, statistics, and the natural, cognitive, social and managerial sciences. The study of Computational Science provides a critical connection between mathematics and science and exposes our students to modern computational techniques used to apply models and extract information from data. The Computational Sciences Minor at Loyola University New Orleans offers our students the opportunity to learn the latest computational techniques while working on undergraduate research under the supervision of a faculty mentor, thus preparing students for a career in science.

General statement and descriptive information concerning the unit
This program brings together faculty and students in the Sciences, in Mathematics, and in other disciplines. Student use Mathematics, Statistics, and Programming to do undergraduate research in their disciplines.

Students in the Computational Science Minor take various computational courses and then apply their knowledge in a research project. Required courses are

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math A211</td>
<td>Intro to Programming I</td>
<td>3 credits</td>
</tr>
<tr>
<td>Math A257</td>
<td>Calculus I</td>
<td>4 credits</td>
</tr>
<tr>
<td>Math A271</td>
<td>Applied Scientific Computing</td>
<td>3 credits</td>
</tr>
<tr>
<td>Math A375</td>
<td>Numerical Mathematics</td>
<td>3 credits</td>
</tr>
</tbody>
</table>

Students then take other courses and perform at least 2 hours of undergraduate research, culminating in a written paper. The other courses together with the research total at least 8 hours credit. Students can write on any topic as long as the research is computationally based. Students and faculty can design their own curriculum. Some options are
### Option I
- **Math A258** Calculus II 4 credits
- **Math A212** Intro to Programming II 3 credits
- Research 2 credits

### Option 2
- **Math A258** Calculus II 4 credits
- Research 4 credits

### Option 3
- Statistics of program 3 credits
- Research 2 credits
- EITHER **Math A212** Intro to Programming II 3 credits
- OR Further research 3 credits

### Option 4
- Statistics of program 3 credits
- **Math A212** Introduction to Programming II 3 credits
- Research 2 credits

### Option 5
- **Math A212** Introduction to Programming II 3 credits
- Research 5 credits

Research topics so far have been in Chemistry, Economics, and Physics.

The program is housed within the Department of Mathematical Sciences and is monitored by a Computational Science committee. This committee has representatives from Biology, Business, Chemistry, Mathematical Sciences, Physics, and Psychology.
Program initiatives and activities

We have enhanced the software available to faculty and students, both through the Computational Science Lab and through the Virtual Lab. In academic year 2010-2011 the Department of Mathematical Sciences was awarded a grant for $46,374. This grant was funded through Louisiana Board of Regents. It provided Microsoft Office, SPSS, Scientific Notebook, Matlab and Labview for the Virtual Lab.

We have integrated the use of the Virtual Lab into our course work, in particular in Finite Mathematics, Introduction to Programming I and II, Calculus I, II and III, Linear Algebra, Ordinary Differential Equations, Statistical Inference for Science, Applied Scientific Computing, Introduction to Differential Equations, Advanced Calculus, and Biomathematics (a newly developed course in our curriculum). The faculty is planning to implement the use of these tools in upcoming years in other courses such as Probability, Mathematical Statistics, Computational Mathematics, and Abstract Algebra. The Virtual Lab has been used by faculty and students in Mathematical Sciences, Physics, and Chemistry. Additionally, faculty in Biology and Psychology have expressed interest in learning to use the available software. We have instituted “learning seminars” where our faculty give tutorials on the tools available. This past spring Dr. Xuefeng Li of Mathematical Sciences gave a tutorial on how to use Latex (TeXnic in the Virtual Lab). The “learning seminars” will continue next year.

We have purchased a professional version of MatLab for the Computational Science Lab and a Statistical toolbox for MatLab.

We have placed a copy of Mathematica in the student lounge in the Physics Department.

Several new software packages are currently being installed. These include

<table>
<thead>
<tr>
<th>NAME OF SOFTWARE</th>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFlap</td>
<td>Theoretical computer science</td>
</tr>
<tr>
<td>Gap</td>
<td>Computations in abstract mathematics</td>
</tr>
<tr>
<td>C++</td>
<td>Scientific computing</td>
</tr>
<tr>
<td>Eclipse</td>
<td>Programming environment for C++</td>
</tr>
<tr>
<td>FORTRAN</td>
<td>Scientific computing</td>
</tr>
<tr>
<td>R</td>
<td>Statistics</td>
</tr>
</tbody>
</table>
Assessment

We have four criteria which we use to conduct assessment. These criteria are in the protocol of our program; the protocol is posted in our Intranet site.

1. Recruitment and retention of students.

2. Peer evaluation of course materials.

3. Committee evaluation of computational science research projects.

4. Success of our graduates in graduate school and in the work force.

Description of the previous year's assessment activities, both of internal (within Loyola) and external (outside Loyola) factors affecting the unit

The Computational Science committee has held meetings twice per semester to discuss concerns germane to the program. Please see the attached minutes. During these meetings we monitored the criteria listed in the paragraph above. Also, each faculty member who mentored an undergraduate research project was required to submit a research proposal for approval by the committee.

The program was successful in all areas during its Academic Years 2010-2011 and 2011-2012. During Academic Year 2011-2012 we identified some areas which need improvement. Despite these weaknesses we feel that the program is still successful.

1. Recruitment and retention of students.

After two years in which the numbers held steady, the numbers dipped in Spring 2012. Currently we have 3 students formally enrolled in the program. Another student has indicated that she will declare the minor during Fall 2012.

At the last meeting of the semester faculty on the Computational Science Minor Committee discussed strategies for recruitment. These include visiting departments in the Sciences and in Business. Plans were discussed for holding a recruitment meeting during Fall 2012. Faculty will give talks on Computational Science projects.
2. Peer evaluations of course materials.

At the last meeting of Spring 2012 the committee discussed several issues.

a. When discussing specific courses in the program the faculty decided that Math A211 Introduction to Programming I needed to be more rigorous. Dr. Tucci, who regularly teaches the course, agreed. He will increase the difficulty of the programming assignments.

b. The committee discussed what software to acquire. This discussion resulted in the software requests listed above in page 2.

3. Committee evaluation of computational science research projects.

a. Suggestions were made as to the format for undergraduate research projects. It was agreed that the substance of the research projects was satisfactory.

b. The Computational Science Minor Committee received one proposal from William Duhe. He plans to work with Dr. Biswas on a project in Physics. The committee approved the proposal.

4. Success of our graduates in graduate school and in the work force.

Our graduates have been successful.

<table>
<thead>
<tr>
<th>NAME</th>
<th>YEAR OF GRADUATION</th>
<th>AREA OF STUDY</th>
<th>POST-GRADUATE ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunter Fontenot</td>
<td>2010</td>
<td>Chemistry</td>
<td>Studied nuclear Chemistry in Tennessee Planning to study Engineering at LSU</td>
</tr>
<tr>
<td>Alex Girau</td>
<td>2010</td>
<td>Chemistry</td>
<td>Accepted into the graduate program in Chemistry at Tulane</td>
</tr>
<tr>
<td>Anna Lee</td>
<td>2010</td>
<td>Chemistry</td>
<td>Working in a medical lab in Baton Rouge</td>
</tr>
<tr>
<td>Marc Melancon</td>
<td>2010</td>
<td>Business</td>
<td>Received Master’s Degree in Economics from George Mason University</td>
</tr>
<tr>
<td>Holly Gardner</td>
<td>2011</td>
<td>Physics</td>
<td>Accepted into the graduate program in Computational Science at George Mason University</td>
</tr>
<tr>
<td>Warner Sevin</td>
<td>2011</td>
<td>Physics</td>
<td>Accepted into the graduate program in Physics at UNO</td>
</tr>
</tbody>
</table>

2. **Offices/Departments/Centers/Institutes (Non Degree-Granting) Summary & Assessment Results for Key Performance Indicators (KPIs)/Student Learning Outcomes (SLOs), where applicable (See Tables 2.1 through 2.4 located in the Appendix)**

After reviewing available data/information (both university and office/department/center/institute generated information), provide a summary of results and key implications.

Please note: It is important that you review for accuracy the university-generated data provided in Tables 2.1 through 2.3 following section 7 of this template and input the requested information in Table 2.4 if applicable. The university conducts surveys of student satisfaction and other assessment measures each year (e.g., Graduating Student Survey, Student Satisfaction Inventory (SSI), Adult Student Priority Survey (ASPS), National Survey of Student Engagement (NSSE), etc.) The results of AY 2011-2012 surveys are listed in Table 2.3. Some of the information from these surveys will be relevant to your area. You may select any relevant information in addition to any assessment data you have collected.

To access office/department/centers/institutes-specific data generated by the university, link: [http://ar.loyno.edu](http://ar.loyno.edu) and use your Loyola username and password. You will be able to correct information as well as copy and paste items via this link. If you have access difficulty, contact Patrick Armstrong at extension 2976 or email: parmst2@loyno.edu. If you have questions about how to use any of this data in your assessment contact Cindy Caire or Donna Bourgeois at extension 3523 or email: caire@loyno.edu or dhbourg@loyno.edu, respectively.

**Student Learning Outcomes (SLOs):** Refer to a set of overarching departmental student learning goals (e.g., what do you want students to know or be able to do resulting from your program, specific courses, or special initiatives, activities, and services).

**Key Performance Indicators (KPIs):** Refer to a set of measures selected by stakeholders (e.g., university, divisions, colleges, departments, etc.) that serve to demonstrate effectiveness/progress in meeting a respective unit’s strategic goals as well as support of the University mission & vision.
3. Summary of Office/Department/Center/Institute Achievements and Committee Service

The Computational Science Minor is an interdisciplinary program. Any faculty member in the Departments of Biology, Chemistry, Mathematical Sciences, Physics, and Psychology, and in the College of Business is eligible to teach in the program. For this reason we focus on four faculty members who were most directly involved with the program during academic year 2011-2012. Dr. Thom G. Spence of Chemistry and Dr. Maria E. Calzada of Mathematical Sciences taught Math A271 Applied Scientific Computing. Dr. Ralph P. Tucci taught Math A211 Introduction to Programming I. These courses are core courses in the minor. Dr. Tucci also taught Math A212 Introduction to Programming II, which is an elective in the minor.

A. Awards/distinctions for your office/department/center/institute as a whole

Research activities

Awards

Dr. Tirthabir Biswas of the Department of Physics was awarded the Excellence in Research Award in the College of Humanities and Natural Sciences for 2011-2012.

Dr. Tirthabir Biswas received a “Research Competitiveness Subprogram” grant from Louisiana Board of Regents (LABoR) this year. The total grant amount is $34,780. The grant runs for the period 06/01/2011 to 06/30/2013. The title of the grant was “Numerical Explorations of the Cyclic Inflationary Model of the Early Universe”.

Dr. Tirthabir Biswas received a “Bobet Fellowship”, Loyola University, 2012.

Papers published and in preparation, 2011 2012

Dr. Tirthabir Biswas, Alexey S. Koshelev, Anupam Mazumdar, and Sergey Yu. Vernov, “Stable bounce and inflation in non-local higher derivative cosmology”, accepted for publication in JCAP.


Papers Presented, 2011-2012

Tirthabir Biswas, “Towards a Singularity-free Universe”, University of Alabama, Tuscaloosa, April, 2012.

Tirthabir Biswas, “Stringy Nonlocal Theories”, at “Symposium on Subatomic Physics” held at McGill University, Montreal, Canada, June, 2012.


Student achievement

William Duhe finished working with Dr. Biswas on a project titled: “Thermal Fluctuations of p-adic strings and the Cosmic Microwave Background Radiation (CMBR)”. Mr. Duhe has given a departmental seminar based on this work. He has also made a poster presentation at the LASpace conference held this year at LSU in November.

William Duhe has been working with Dr. Biswas on a research project titled “Cyclic Cosmology”, PHYS A498-001. Recently, he presented his work at the “International Conference of the Physics Students” in Utrecht, Netherlands.


In related activities, Drs. Calzada and Tucci worked on computational projects with Ms. Leah Birch, a major in Computational Mathematics. Leah was accepted into the Ph.D. program in Industrial Mathematics at Harvard University. She was active in undergraduate research, and completed three research projects as an undergraduate; one was with Dr. Calzada, a second was with Dr. Tucci, and a third was completed as part of an REU (Research Experience for Undergraduates) program at another university.

Community engagement

Dr. Biswas organized the participation of the Physics department and the students in a Science Fair being organized by City Year and STEM aimed at school kids from 3rd to 8th grade.

Representatives from General Electric met twice in 2011-2012 with faculty on campus both before and after they moved a branch to New Orleans. Dr. Tucci attended the initial meeting, and Drs. Calzada, Spence, and Tucci attended the second meeting.

Dr. Tucci attended a talk on campus by representatives from local computer-related businesses. At this meeting Dr. Tucci established contact with Mr. Joe Ellis, who graduated from Loyola with a degree in Computer Science.

B. University Committee Service
Dr. Biswas
Member of the Computational Science minor committee
Member of the Advanced Common Curriculum Science Workgroup
Member of the Common Curriculum Science Lab Workgroup
Faculty Advisor of the Student Physics Society at Loyola
Member of the Search Committee for hiring an extra ordinary faculty in the Physics department

Dr. Calzada
Member of the Computational Science minor committee
Member of the Ad Hoc Senate Committee on Salary Compression
Member of the Faculty Handbook Review Committee (Fall 2010 – Spring 2012) (replaced by Dr. Tucci in the Fall of 2011)
Member of the Undergraduate Collaborative Scholarship Committee (Fall 2009 to present)
Participated in the President’s Open House, Spring 2012
Member of the College Planning Team (Ex Officio in the spring of 2011)
Science Liaison to the Council of Chairs, Spring 2012
Member of the Departmental committee revising Math T122, a Common Curriculum Mathematics course

Dr. Spence
Chair of the Department of Chemistry
Member of the Computational Science minor committee
Member of the Ad Hoc Senate Committee on Salary Compression
Participated in the President’s Open House, Spring 2012

Dr. Tucci
Chair of the Ad Hoc Committee on Salary Compression
Director of the Computational Science Minor
Vice Chair of the University Faculty Senate
Participated in the President’s Open House, Spring 2012
Faculty Handbook Committee, Fall 2011 (replacement for Dr. Calzada)
B. University Committee Service (including: Task Forces and Special Initiatives) and Strategic Alignment (Use codes indicated in footnote number 1)

Where applicable please list:

- Office/Department/Center/Institute personnel (Faculty/Staff) committee service

1 University Committee Service Codes:
Strategic Alignment: for Office/Department/Center/Institute personnel note service on university committees/task forces/special initiatives.

**CODE: Strategic alignment**

ED – Educational Mission, Committees related to enhancement of learning and educational experiences (e.g., Online Educ. Cmt.)

ST – Student Enrollment/Relations/Co-curricular Programming (e.g., Marketing, recruitment & admissions related activities, student success (retention activities), alumni relations and co-curricular initiatives and events)

SG – Shared Governance (University-Level Committees such as Administrative Senate, Strategic Planning Cmt., etc.)

UR – University Reputation (e.g., Presentations at national professional conferences, developing grant proposals to enhance university programs or support initiatives, etc.)

UI – University Identity (Committees related to enhancement of Jesuit Values and University Identity, e.g., participating in centennial planning and events, Mission & Ministry related activities, and community-engaged service)

OT - Other
4. **Strategic planning and goals for AY 2011-2012**

- Provide a general description of the office/department/center/institute process of strategic planning, **top strategic goals for AY 2011-2012**, and associated strategies/initiatives. (The current strategic plan should be posted on the office/department/center/institute’s Intranet site. If you are in the process of developing/updating a strategic plan, please offer a brief description of what planning stage your area is in currently and your timeline for completion.)

The strategic planning is summarized in the four areas of assessment:

1. Recruitment and retention of students.
2. Peer evaluation of course materials.
3. Committee evaluation of computational science research projects.
4. Success of our graduates in graduate school and in the work force.

This plan is incorporated as part of the protocol of the Computational Science Minor.

The top goals for 2011 and 2012 are:

*Recruit more students.* Dr. Tucci has already arranged to visit the activities for entering freshmen scheduled for the first week of classes. He will visit students in Biology, Chemistry, Mathematical Sciences, Physics, and Psychology.

*Make Math A211 more rigorous* Dr. Tucci has explored ways to make the course more rigorous, in particular by giving more programming assignments as homework, having the students work on extra assignments in class, and making these assignments more challenging.
Computational Science Goals and Learning Outcomes

Learning Outcomes

<table>
<thead>
<tr>
<th>I.</th>
<th><strong>Goal:</strong> Achieve basic proficiency in mathematics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Outcome: Student will be able to solve equations</td>
</tr>
<tr>
<td>B.</td>
<td>Outcome: Student will be able to set up elementary models</td>
</tr>
<tr>
<td>C.</td>
<td>Outcome: Student will be able to use models to derive information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II.</th>
<th><strong>Goal:</strong> Achieve basic proficiency in computational skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Outcome: Student will be able to write programs to solve equations</td>
</tr>
<tr>
<td></td>
<td>Outcome: Student will be able to examine numerical techniques of interpolation and equation solving</td>
</tr>
<tr>
<td>B.</td>
<td>Outcome: Student will be able to interpret physical data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III.</th>
<th><strong>Goal:</strong> Enhance computational skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Outcome: Students will be able to perform advanced computational techniques in mathematics, statistics, and programming</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV.</th>
<th><strong>Goal:</strong> Apply the previously learned skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Student will complete a computational research project</td>
</tr>
</tbody>
</table>

- Where applicable, list your AY 2011-2012 assessment activities related to your educational program(s) and how you measured your student learning outcomes or student performance (what methods of data gathering and what metrics did you use?) Where are the assessments/data located?
Please see page 4 and 5.

- List the assessment of KPIs/SLOs related to community-engaged learning, research, and service as well as your unit’s overall community-related goals, if applicable.

  Not applicable.

- Briefly describe the results found through the assessment of your office/department/center/institute’s KPIs/SLOs including any community-related outcomes. What did you learn from the results? Describe how the assessment results were evaluated, and what criteria/rubrics were used to determine progress or success or need for improvement relevant to the KPIs and SLOs cited above.

- Describe how the results are used to inform programmatic enhancements (provide specific illustrations). What action plans are being implemented? What follow-up assessment is planned? It is important that we demonstrate “full-circle” planning, assessment, reflection, and action. The codes listed below are found on the Assessment Support Team’s (AST) Assessment Inventories and are included to assist you in categorizing how the results were used.

6. **Budget for AY 2011-12**

  - Provide a brief narrative of your unit budget and expenditures for AY 2011-2012, including an assessment of the adequacy of the budget to support of the strategic goals/initiatives of your area.

  The program has a budget of $1,500. We spent most of the budget on a professional version of MatLab; we needed this for faculty research. We also bought a statistical package for Mathematica. This software was installed in the Computational Science Lab, Mo 564. The remainder of the budget was spent on paper and printing supplies. The budget is modest but is currently adequate for our needs.
7. **Supportive Documents**
   
   - Supply all source documentation referenced in your Annual Report (e.g., post relevant office/department/center/institute meeting minutes as well as copies of any tools such as surveys, interview protocols, test or portfolio evaluation rubrics, etc.) that the office/department/center/institute uses to collect and evaluate data about key performance or student learning achievement.
   
   - Provide copies of any office/department/center/institute-generated reports in which you summarize assessment results and decision-based unit actions in AY 2011-2012.
   
   - Where applicable, provide supporting documentation that demonstrates “full-circle” planning, assessment, reflection, and action (i.e., continuous process of improvement) such as proposals for new courses/programs, proposals for course or program revisions/enhancements, and any other office/department/center/institute-generated reports in which you summarize assessment results and information/data-based unit actions in AY 2011-2012 including evidence of improvement stemming from follow-up studies of actions taken before AY 2011-2012.

   Attached to the Appendix are minutes for the meetings of the Computational Science Minor Committee. The last meeting focused on assessment. Please see Section 1, Pages 4-5 for a description of “full-circle” planning and assessment.
APPENDIX

Table 2.1: List of all Personnel and Associated Position Titles AY 2011-2012

<table>
<thead>
<tr>
<th>A. List Name of Personnel</th>
<th>B. Personnel Employment Status</th>
<th>C. Position Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucci, Ralph – Ph.D.</td>
<td>Professor, Mathematics Dept.</td>
<td>Chair, Computational Science minor</td>
</tr>
</tbody>
</table>
COMPUTATIONAL SCIENCE MINOR COMMITTEE
MINUTES
OCTOBER 31, 2011

Present
Dr. Tirthabir Biswas from Physics, Drs. Ralph Tucci, Michael Kelly, and Jeremy Thibodeaux from Mathematical Sciences, and Dr. Erin Dupuis from Psychological Sciences

Approval of the minutes from March 25, 2011: The minutes were approved unanimously.

Announcements:

1. Austin Duke (math/biology major) may be an additional minor.
2. The 2010-2011 Annual Report is now available for perusal on the Computational Sciences intranet.
3. The committee discussed how we might spend our $900 budget? Any additional equipment needs? Student needs? We used part of the budget last year to buy a book for Holly Gardner as part of the Computation Science Award.
4. Any student on campus can use Mathematica, MatLab, and SPSS although each remote application has a maximum number of people who can be logged on at one time (about 25-30)
   - The remote applications can be located at the following address: http://www.loyno.edu/vlab/
5. Computational Science Lab has new machines for use on the 5th floor.
6. Dr. Calzada’s Applied Scientific Computing class time was changed for S12 allowing more students to enroll. The schedule class is now TR 9:30-10:45.
7. The committee voted on an identifier in LORA and SIS. The new identifier will be CXSS: Computational Science Studies. (The committee was subsequently informed that an identifier already exists.
8. Dr. Biswas discussed the Physics monthly seminar. The committee discussed whether we should have minor students use these seminars as a forum for presenting their completed work. It was generally agreed that this would be a good idea; however, as of now, the students who have completed work have already graduated. We should keep this in mind for future students.

The meeting was adjourned at 4:20pm.
The meeting of the Computational Science Minor Committee was called to order at 12:30 in MO 540.

Present Dr. John Levendis from Business, Drs. Michael Kelly, Xuefeng Li, Jeremy Thibodeaux, and Ralph P. Tucci from Mathematical Sciences, Dr. Tiirhtabir Biswas from Physics, Dr. Erin Dupuis from Psychology.

Minutes of October 31 were approved.

II Announcements

On Tuesday, November 29 a program proposal for a Computer Science Minor was submitted to the Department of Mathematical Sciences. The proposal was approved by the department.

The Interdisciplinary Minors program held a meeting on Monday, November 28 at 3:00 to discuss the upcoming SACS review. The main topics were the SACS review. Discussion focused on assessment.

A report was submitted regarding the Computational Science minor for the SACS review. A copy of the report as well as a course matrix was distributed to the committee.

III Old Business None

IV New Business

Dr. Tucci announced that the Annual Report for the Computational Science Minor was completed. A copy of the report was distributed to the committee.

The meeting was adjourned at 1:15.
The Computational Science Committee held a meeting in Mo540 in February 12. The meeting was called to order at 12:30.

Present  Dr. Craig Hood from Biology, Dr. John Levendis from Business, Drs. Michael Kelly, Xuefeng Li, Jeremy Thibodeaux, and Ralph P. Tucci from Mathematical Sciences, Dr. Tirhtabir Biswas from Physics, Dr. Erin Dupuis from Psychology.

I Minutes  Minutes of December 5, 2011 were approved.

II Announcements

1. The budget has approximately $900 left.
2. The Computational Science lab now has a version of MatLab which is suitable for creating publishable research.
3. Currently the program has the following students.

   Andrew Allain  Physics
   Elliott Downey  MUCP
   William Duhe  Physics
   Keegan McCauley  Chemistry
   Neal Outland  Psychology

4. Please let Dr. Tucci know of any hardware or software requests.

III Old Business  None

IV New Business

1. Dr. Biswas announced that he has a student, William Duhe, who is about to propose a topic for research.
2. Discussion was held on recruitment and retention.
3. Discussion was held on the President’s Open House.
4. Discussion was held on program evaluation. A list of questions from the Systematic Assessment Guide was distributed to the committee.

The meeting was adjourned at approximately 1:30.
A meeting of the Computational Science Committee was held on April 18, at 12:30 PM.

PRESENT

Dr. Craig Hood from Biological Sciences, Dr. John Levendis from Business, Dr. Thomas Spence from Chemistry, Drs. Maria Calzada, Jeremy Thibodeaux, Ralph P. Tucci, from Mathematical Sciences, Drs. Tirhtabir Biswas from Physics, Drs. Erin Dupuis and Eskine Kendell, from Psychology

I Minutes Minutes of the meeting of February 12, 2012 were approved.

II Announcements.

1. The budget still has approximately $900 left. Dr. Calzada requested money for an upgrade for Mathematica. This request was approved.

Discussion was held on how to spend the remaining money, which was about $200. Requests were solicited.

2. Currently the program has the following students.

Andrew Allain  Physics
Elliott Downey  MUCP
William Duhe  Physics
Keegan McCauley  Chemistry
Neal Outland  Psychology

FYI After the meeting, Valencia Luke informed Dr. Tucci that two students has left the program. Recently, another student, Heather Renfro in Chemistry, has expressed interest in joining the program.
3. Hardware and software requests for IT were solicited.

4. The Computational Science program participated in the President’s Open House.

5. No student is completing the program this year; consequently, we will not be giving any awards at the Honors Convocation.

III Old Business.

None.

IV New Business.

1. William Duhe, a student of Dr. Biswas, submitted a research proposal. The committee approved the proposal.

2. We conducted our annual evaluation of the program. According to our protocol, the criteria discussed were:

**Recruitment and retention of new students into the program**
The numbers in the program were low relative to precious years. Currently we have 3 students, and one has expressed interest in enrolling in the program. This came as a surprise to the committee, since the numbers were good during the first two years of the program. Plans were made to recruit students. These plans include:

- visiting student receptions during the first week of classes;
- visiting student organizations during the semester;
- holding a mid-semester reception for the students in the Computational Science program;
- distributing promotional material, such as brochures.

**Peer evaluation of course materials**
The committee was satisfied with all the courses in the program with the exception of Math A211 Introduction to Programming I. The consensus of the committee was that the course needs to be made more rigorous. Dr. Tucci will work on improving the course.

**Committee evaluation of computational science research projects**
The committee evaluates research projects by reviewing research proposals and by examining t

**Success of our graduates in graduate school and in the work force**
Our graduates have been successful.

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>AREA OF STUDY</th>
<th>ACTIVITIES AFTER GRADUATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc Melancon</td>
<td>Business</td>
<td>Received a Master's degree in Economics from Georgra Mason University</td>
</tr>
<tr>
<td>Alex Girau</td>
<td>Chemistry</td>
<td>Enrolled in an engineering program at Tulane University</td>
</tr>
<tr>
<td>Anna Lee</td>
<td>Chemistry</td>
<td>Working in a medical lab in Baton Rouge</td>
</tr>
<tr>
<td>Hunter Fontenot</td>
<td>Chemistry</td>
<td>Studied nuclear Chemistry in Tennessee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planning to study Engineering at LSU</td>
</tr>
<tr>
<td>Holly Gardner</td>
<td>Physics</td>
<td>Enrolled in the Ph.D. Program in Computational Science at George Mason University</td>
</tr>
<tr>
<td>Warner Sevin</td>
<td>Physics</td>
<td>Enrolled in the graduate program in Physics at UNO</td>
</tr>
</tbody>
</table>

**CONCLUSION** Overall the committee feels that the Computational Science Minor program is a success, as evidenced by the success of our graduates. We need to build up the numbers in the program, and we need to increase the rigor in Math A211 Introduction to Programming I.

The meeting was adjourned at approximately 1:45.