I. INTRODUCTION

A. STATEMENT OF MUTUAL EXPECTATIONS (SME)

(The following are the first two pages of a faculty Dossier. Total cannot exceed 2 pages. The text in italics should remain unchanged – it represents department’s expectations. Please keep the order of items – with ref to university REG05.20.27 – link: http://policies.ncsu.edu/regulation/reg-05-20-27)

i) General Departmental Expectation – Responsibilities and contributions of CSC faculty conform to relevant departmental, college, and university rules, policies and regulations, including departmental Teaching Load, Release Time, and Definitions policies (http://www.csc.ncsu.edu/department/policies/index.php); departmental, college and university Reappointment Promotion and Tenure (RPT) and Post-Tenure Review (PTR) policies, etc. Faculty work in collegial manner. Load follows departmental load policy and distribution. Excellence is expected. Evidence of good teaching, research, service and other activities is required. Faculty are evaluated, based on the departmental and college RPT and PTR rules using individual consideration but with due attention to total and effective service to the institution. Faculty pro-actively mentor junior colleagues, and participate in faculty recruiting and other activities of import to the department, including those that increase and propagate good national and international standing, ranking and reputation of the department. Department will support faculty according to their contributions, departmental mission and scope, policies, regulations and rules, and within the scope of funding and other resources available to the department. This document may contain short-term and long term goals, actions and information. It will be updated as needed. All faculty are required to have a signed SME on file with the department.

Faculty input: My current research effort level is: very active research, and my current service effort level is: more than base-line service. Based on this and planned leadership, my teaching effort for the next SME period is 2 CSC 226 courses per academic year.

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1 For example, during annual faculty evaluation period (spring semester every academic year), when a major RPT or PTR action occurs, or when status or activity level of the faculty member changes (e.g., sabbatical, leave of absence, partial/phased retirement, major changes in duties, etc.), and at least once within a PTR cycle of the faculty member (annually for assistant, every 3 years for associate, and every 5 years for full professors). Updates may be issued via email, or some other form of written communication, as addenda to the signed SME.

2 New SME period typically covers at least one academic year into the future, however the document may cover longer periods if that is appropriate. Current (past) period performance, on which future teaching load expectations are determined, is based (barring special arrangements, such as start-up) on a moving average analysis of research, service and teaching performance described in the CSC Definitions.
ii) Teaching (academic activities) – Teaching Responsibilities

Departmental expectations: Excellence in teaching is expected. Current departmental teaching load and other related policies will be followed. Teaching of both undergraduate and graduate courses, and mentoring and advising of undergraduate and graduate students is required. Leadership and participation in the design and implementation of new courses, and in the revision of existing core and area of specialty courses, is expected. Faculty are expected to pro-actively engage in all academic activities of import to the department.

Faculty input: My teaching effort for AY 2015-2018 is 2 large CSC 226 courses in fall semesters, with additional support of large spring CSC 226 courses. I teach graduate and undergraduate courses (to date, CSC 226: Discrete Mathematics, CSC 495/591: Serious Games, CSC 495/591 Educational Data Mining, CSC 495/591: Interdisciplinary Game Based Learning Design.)

iii) Scholarship (research and innovation) – Research Areas

Departmental expectations: Excellence in scholarship is expected. An active, funded, peer-reviewed, nationally and internationally prominent research program in chosen areas of expertise is expected. This includes research, publications and direction of PhD and MS students to successful completion (as chair or co-chair). High-quality scholarship is expected to be a) funded well beyond the individual faculty salary level (including release time) over long periods of time, and b) is expected to support graduate students. Faculty are expected to engage pro-actively in all scholarship activities of import to the department.

Faculty input: During the next SME period I plan to have my research effort at a very active research level.

iv) Professional Activities (service)

Departmental expectations: Excellence in leadership and professional activities is expected. All faculty are expected to participate in departmental, college and university level committees and other governance activities and roles. All faculty are expected to participate in relevant external professional activities (e.g., professional societies, conference program committees, national and international professional bodies and activities).

Faculty input: During the next SME period I plan to have my service effort at more than base-line service level.

_______________________________        _____________________________
Tiffany Barnes, Associate Professor        Mladen A. Vouk, Dept. Head       Date

document. Faculty teaching load, and other duties, are reviewed and updated by the department head on as needed basis, and at least once a year during the annual faculty review process.
B. BRIEF RESUME

1. Education background:
   - Ph.D., Computer Science, North Carolina State University, Raleigh, NC, USA, 2003.

2. Professional experience:
   - 2012-present: Associate Professor, North Carolina State University, Raleigh, NC, USA.
   - 2010-12 (Assoc. Prof), 2004-2010 (Asst. Prof): UNC Charlotte, Charlotte, NC, USA.
   - 2007-12: Game Design and Development Graduate Certificate Director, UNCC.
   - 2002-07: Instructor, Engineering Online, North Carolina State, Raleigh, NC, USA.

3. Scholarly and creative activities/publications (see CV for details):

<table>
<thead>
<tr>
<th>Books</th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edited books and proceedings</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Refereed book chapters</td>
<td>6</td>
<td>1</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Papers, Articles, Patents, Reports, News Interviews</th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period</th>
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</thead>
<tbody>
<tr>
<td>Refereed journal articles</td>
<td>15</td>
<td>4</td>
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<td>2</td>
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<tr>
<td>Refereed conference papers</td>
<td>74</td>
<td>25</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Refereed book chapters</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Refereed workshop papers</td>
<td>12</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Refereed posters, panels</td>
<td>31</td>
<td>6</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Talks, Presentations, etc.</th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keynotes and distinguished speaker invitations</td>
<td>7</td>
<td>2</td>
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</tr>
<tr>
<td>Other invited talks</td>
<td>9</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Other talks</td>
<td>18</td>
<td>.</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funded Research, Development and Teaching</th>
<th>Career Total (dollars)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period</th>
<th>Pending ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>($)</td>
</tr>
</tbody>
</table>
## Contracts and Grants

<table>
<thead>
<tr>
<th></th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period$^1$</th>
<th>In Progress</th>
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</thead>
<tbody>
<tr>
<td>$15,065,273</td>
<td>$3,376,503</td>
<td>$2,189,902</td>
<td>$2,189,902</td>
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## Mentoring and Supervision

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<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period$^1$</th>
<th>In Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD (chair/co-chair)</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>9</td>
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<tr>
<td>MS (chair/co-chair)</td>
<td>15</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Undergraduate research advisories</td>
<td>87</td>
<td>25</td>
<td>7</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

## Courses created and/or revised in a significant way (complete list in CV)

<table>
<thead>
<tr>
<th>Category</th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over moving PTR Period$^1$</th>
<th>In Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
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<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Graduate</td>
<td>7</td>
<td>3</td>
<td>0</td>
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</table>

## Courses taught

<table>
<thead>
<tr>
<th>Category</th>
<th>Career Total (number)</th>
<th>Since Joining NCSU</th>
<th>7/1/15-6/30/16</th>
<th>Total over PTR Period$^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small undergrad (3 cred, x &lt; 10 students)</td>
<td>4</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Regular undergrad (3 cred, 10 &lt; x &lt; 100 stud)</td>
<td>20</td>
<td>4</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Distance undergraduate (3 cred, ~20 students)</td>
<td>18</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Large undergraduate (3 cred, x &gt; 100 students)</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Small graduate (3 credits, x &lt; 10 students)</td>
<td>10</td>
<td>1</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Regular graduate (3 cred, 10 &lt; x &lt; 100 stud)</td>
<td>4</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>
4. Membership in professional organizations:
- Association of Computing Machinery (ACM),
- Artificial Intelligence in Education (AIED) Executive Committee 2014-2019
- ACM SIG Computer Science Education, Board At Large Member June 2013-16
- International Educational Data Mining Society, Executive Steering Committee 2008-2016

5. Scholarly and professional honors:
- NCWIT Undergraduate Research Mentoring Award 2016
- NSF Ideas Lab invitation in Oct 2013, Data Intensive Research on Teaching & Learning
- NSF Career Award 2009-2015
- College Board CS Principles Phase I Piloter 2010-2011, Phase 3 piloter 2013-14
- 3 paper nominations, top-tier AI in Education & Intelligent Tutoring Systems conferences
- UNCC CCI Excellence in Undergraduate Teaching Award 2009 & 2008

6. Professional service on campus (current, see CV for full list):
- CSC Strategic Planning Committee, 2014-present.
- Member, Centers for Education Informatics & Digital Games Research, 2012-present.
- STARS Student organization faculty advisor 2012-present
- Engineering Outreach Summer Camps 2013-16

7. Professional service off campus (Highlights, see CV for full list):
Organization of International Conferences and Workshops
- General Chair: ACM SIGCSE 2018, Program Co-Chair: ACM SIGCE 2017
- General Chair: 8th Intl. Conference on Educational Data Mining, June 2016
- General Co-Chair: STARS Celebration 2015, 2016
- Program Co-Chair: Intl. Conference on Foundations of Digital Games (FDG 2014)
- Doctoral Consortium Chair: ACM FDG 2012, EDM 2013, AIED 2015
- Program Chair: 2nd Intl. Conference on Educational Data Mining 2009
- General Conference Chair: 6th Annual STARS Celebration, August 2011
- General Conference Chair: 1st Intl. Conference on Educational Data Mining, June 2008

Program Committees:
- Intelligent Tutoring Systems 2012-16 (bi-annual), Educational Data Mining 2010-2016
- Artificial Intelligence in Education Conference (AIED 2011-15, bi-annual conference)

Journal & Book Chapter Reviewing
- J. Educational Data Mining 2011-14, Intl. J. Artificial Intelligence in Education 2011-13
- Intl. Journal of Human-Computer Studies 2010 - 2013
- Applied Psychological Measurement 2008-2012
C. CANDIDATE’S STATEMENT

Dr. Barnes’s main research contributes to advancing personalized learning through artificial intelligence and educational data mining [J9, BC1, BC3, A18, CP36, CP40, CP42, CP43, CP47, CP51, CP53-54, CP57-58, W5-7], while she also conducts research in the development and evaluation of games in education [J13, BC2, CP38, A19, CP41, CP44, CP48, CP28, A21-23, A30, P1] broadening participation in computing [J8, J10, J13, J7, BC4, BC5, CP39, CP45-46, CP59, A20, A24, A25-27, A29], and human-computer interaction [CP49-50, CP52].

Educational Data Mining

Dr. Barnes has demonstrated leadership in Advanced Learning Technologies in educational data mining and games for teaching computer science. Dr. Barnes’s primary interest in educational data mining research is in building intelligent, adaptive teaching systems using machine learning, which can greatly reduce the ratio of 100-1000 hours of development per hour of instruction. The motivation in Dr. Barnes’s work is to increase our understanding of human learning and how to best support this learning through interactive and intelligent learning environments. In her work, Dr. Barnes has performed a combination of a) theoretical work, developing computational models of student knowledge, b) empirical study of the effectiveness of these models for remediation, and c) integration of the results of my research into practical systems.

Deep Thought is a mature tutoring system for logic proofs that has been used in the Discrete Mathematics course here at North Carolina State University and at Philosophy courses at UNC Charlotte since 2008. We recently completed development and deployment of Deep Thought 3.0 that has been updated for modern browsers, expanded with additional instructor features, and augmented with a data-driven mastery learning (DDML) system that guides student problem selection based on past performance. In recent studies we have shown that this data-driven mastery learning system enhances student learning and retention and helps to support ongoing engagement.

Serious Games

Dr. Barnes established the Game2Learn Research Lab at UNC Charlotte and NCSU, which investigates the use of games that teach computer science in improving recruiting, performance, and retention of diverse students in computer science [CP44, CP48]. The lab was transitioned to the Center for Educational Informatics at NC State in 2012. This tiered model has engaged 92 advanced high school and undergraduate computing students in building and evaluating games for teaching introductory computing. Dr. Barnes’s results have shown that the project recruits advanced students into graduate school [CP45] and that the games have potential for learning in introductory classes [CP35, CP37-38, CP41, CP44, CP48].

Broadening Participation in Computing

Dr. Barnes has been working in improving recruiting and retention of girls and women in programmers. Players of BOTS create programming problems for each other to solve. Her PhD student Andrew Hicks has developed BOTS, a Serious Game designed to teach programming fundamentals to novice with BOTS has focused on filtering the quality of the created content, and providing feedback for newly created content based on player data. computing since 1997, when she participated (as a graduate student) in writing the successful NSF-ITWF Girls on Track grant to run a year-round enrichment program centered on a summer camp designed to teach girls math concepts through solving urban and social problems [J10, BC4-5, CP59]. Dr. Barnes has worked to design, implement, and evaluate the NSF-funded STARS Computing Corps (formerly called the STARS Alliance), which provides college and university computing faculty and students with a multiple-year opportunity to serve as leaders and mentors to effect dramatic change in the computing pipeline [J1, J8, J13, J7, CP39, CP46, A20, A24-27, A29]. The STARS program is effective in raising students’ feelings of computing identity, interest in graduate programs in computing, and intention to remain in the field, which is an indicator of future behavior [CP39]. Barnes et al. have demonstrated that STARS at
UNC Charlotte is effective in building a STARS computing identity and improving students’ commitment to computing [J7]. Since 2006, STARS has scaled from 10 institutions in 2006 to over 50 institutions nationally in a collective effort to address the need for recruiting and retaining students from groups typically underrepresented in computing, i.e. women and minority groups. STARS has engaged over 2000 college students and 100 faculty in computing departments 2006-2014. We have built over 200 partnerships between our 53 universities and local organizations including industry and K-12 schools and are institutionalizing our programs to ensure that our interventions will last. STARS has also encouraged increased adoption of pair programming as a teaching method in computing at a number of our universities. STARS students and faculty have conducted outreach to over 120,000 K12 students from 2006-2015. Dr. Barnes is Vice Chair of the STARS Executive Board and directs STARS Evaluation. She chaired the 2015 STARS Celebration in Charlotte, NC.

Barnes was PI for “FRABJOUS CS: Framing a Rigorous Approach to Beauty and Joy with Outreach to Underrepresented groups at Scale” (1346922, $438,831, 2/1/13-2/28/16) that provided Computer Science Principles PD for the Beauty and Joy of Computing (BJC) course (Garcia et al. 2015) for 133 teachers who taught 89 high school BJC courses from 2013-2015. Based on a Summer 2014 survey, the PD significantly improved teachers’ perceived readiness to teach BJC content, to use equitable pedagogies, and to integrate social justice topics into the course (Price, et al. 2016). Following the 2014 PD, fifty-two out of the 61 instructors planned to use BJC materials in 2014-2015, with 35 planning high use (over 70% of the BJC curriculum), and 17 with medium use (25-50%). The likelihood of teaching BJC related to taking the online BJC course (77%) and having taught 8+ years in K12 (51%) (Price, et al. 2016). On a 2015 BJC post-course survey, 257 high school and college students from 10 high schools and 2 colleges would recommend the course to others, and agreed the course was interesting, they had a better idea of how computers work, the course was of value to them, the course helped them to better figure out how to solve problems, the assignments and resources helped them learn, and that they were motivated to learn in the course (Price et al. 2015). Frabjous also trained 10 CSP master teachers who will facilitate BJC PD in Summer 2016.

Based on the success of Frabjous and her leadership in STARS, Barnes has initiated a newly funded project, “Track 2: CS10K: BJC-STARS: Scaling CS Principles through STARS community & leadership development” (1542922, 10/1/15-09/30/18), which seeks to engage universities and local leaders as change agents in their local communities, who can support new high school teachers to teach new Computer Science Principles courses.

Conclusion
Dr. Barnes has established herself as a leader in games, CS education, broadening participation, and educational data mining. She is currently supervising 9 PhD students, and 1 Master’s student, many of whom are supervising undergraduates in research as well. She has brought in over $15 million in grants. Dr. Barnes has mentored an outstanding number (98 and counting) of high school and undergraduate research projects, a known strategy to retain students and interest them in graduate programs. Dr. Barnes’s leadership in computing education has been recognized through her invitations to national dialogues on computer science education and as a member of the ACM SIGCSE Board. Although many of her publications are in conference venues, it is of particular note that most of these are top tier and well-respected, widely read publications of high quality, peer-reviewed status, with acceptance rates around 35% or below.
II. TEACHING AND MENTORING OF UNDERGRADUATE AND GRADUATE STUDENTS

A. TEACHING EFFECTIVENESS

Teaching Honors and Awards

1. NCWIT Undergraduate Research Mentoring Award 2016.
2. UNC Charlotte CCI “Essam El-Kwae Undergraduate Research Mentor” Award 2011-12
3. UNC Charlotte CCI “Essam El-Kwae Undergraduate Research Mentor” Award 2010-11
4. UNC Charlotte CCI “Essam El-Kwae Undergraduate Research Mentor” Award 2009-10
5. UNC Charlotte CCI “Excellence in Undergraduate Teaching” Awards 2008-09, 2007-08
6. UNC Charlotte CCI “Essam El-Kwae Undergraduate Research Mentor” Award 2006-07
7. UNC Charlotte Summer Diversity Institute\(^3\) Invited Speaker 2006, Scholarship 2005
8. NCSU UGSA Outstanding Teaching Assistant Award (1999)
9. NCSU Preparing the Professoriate Award Winner (1998-1999)\(^4\)
10. NCSU Hewlett Initiative Graduate Fellow (1997-1999)\(^5\)

Courses Taught

NC State

1. CSC 226, Fall 2015, Discrete Mathematics for Computer Scientists. Enrollment: 275 in 2 sections (co-taught one section with Donald Bitzer)
2. CSC 495, Spring 2015, Interdisciplinary Game-Based Learning Design. Enrollment: 20 in CSC, 22 in Education (co-taught with Deniz Eseryel in Education).
4. CSC 226, Fall 2014, Discrete Mathematics for Computer Scientists. Enrollment: 266 in 2 sections (co-taught one section with Donald Bitzer)
5. CSC 226, Fall 2013, Discrete Mathematics for Computer Scientists. Enrollment: 243 in 2 sections (co-taught one section with Donald Bitzer)
6. CSC 495, Fall 2013, Special Topics in Computer Science Enrollment: 21 UG.
7. CSC 495/591, Spring 2013, Serious Games, Enrollment: 10 UG, 6 grad
8. CSC 226, Fall 2012, Discrete Mathematics. Enrollment: 139

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\(^3\) This Summer Diversity Institute provides UNCC faculty professional development around creating course materials and environments that acknowledge and integrate activities around diversity into courses.

\(^4\) This competitive Preparing the Professoriate program selected 10 NCSU students university-wide to receive a stipend and participate in teaching effectiveness workshops and mentored teaching experiences.

\(^5\) This competitive program selected 20 graduate students to develop strategies for instituting active learning practices at NCSU. I was co-leader of the Pedagogy group, who developed an active learning student handbook.
Distance Education at NCSU

1. Distance Education: Applied Discrete Mathematics, each Spring, Summer, & Fall 2002-7; Enrollment approximately 12-20 each semester.

Courses Taught @ UNC Charlotte

1. ITCS 1203, Fall 2011, Beauty and Joy of Computing Enrollment: 15 UG
2. ITCS 1203, Spring 2011, Beauty and Joy of Computing Enrollment: 22 UG
8. ITCS 4/5231 Fall 2006 Advanced Game Design & Dev. Enrollment: 8 UG 1 Grad.
16. CICS 1214 Spring 2007 Introduction to Computer Science Enrollment: 38 UG.
17. ITCS 2175 Fall 2011 Logic & Algorithms Enrollment: 75 UG.
18. ITCS 2175 Fall 2009 Logic & Algorithms Enrollment: 83 UG.
19. ITCS 2175 Spring 2009 Online Logic & Algorithms Enrollment: 60 UG.
20. ITCS 2175 Spring 2008 Online Logic & Algorithms Enrollment: 52 UG.
21. ITCS 2175 Fall 2007 Logic & Algorithms Enrollment: 47 UG.
22. ITCS 2175 Fall 2006 Logic & Algorithms Enrollment: 6 UG.
23. ITCS 4650/1 Senior Project I-II 2004 – 2013 Enrollment: 23 UG.
Student Evaluations of Teaching.

<table>
<thead>
<tr>
<th>Question</th>
<th>226-f15</th>
<th>226-f14</th>
<th>226-f13</th>
<th>226-f12</th>
<th>game-s15</th>
<th>game-s14</th>
<th>game-s13</th>
<th>edm-f13</th>
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<tr>
<td>Responses</td>
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<td>58</td>
<td>66</td>
<td>70</td>
<td>10</td>
<td>28</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Enrolled</td>
<td>161</td>
<td>155</td>
<td>144</td>
<td>138</td>
<td>20</td>
<td>79</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>1. instructors teaching aligned with courses learning objectives/outcomes</td>
<td>4.6</td>
<td>4.3</td>
<td>4.7</td>
<td>3.7</td>
<td>4.1</td>
<td>2.9</td>
<td>3.5</td>
<td>4.2</td>
</tr>
<tr>
<td>2. instructor was receptive to students outside classroom</td>
<td>4.4</td>
<td>4.2</td>
<td>4.7</td>
<td>3.7</td>
<td>3.9</td>
<td>3.1</td>
<td>3.7</td>
<td>4.4</td>
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<tr>
<td>3. instructor explained material well.</td>
<td>4.4</td>
<td>3.9</td>
<td>4.6</td>
<td>2.9</td>
<td>3.7</td>
<td>2.7</td>
<td>3.4</td>
<td>3.9</td>
</tr>
<tr>
<td>4. instructor was enthusiastic about teaching course</td>
<td>4.6</td>
<td>4.2</td>
<td>4.7</td>
<td>3.5</td>
<td>4.1</td>
<td>3.6</td>
<td>4.4</td>
<td>4.4</td>
</tr>
<tr>
<td>5. instructor was prepared for class</td>
<td>4.5</td>
<td>4.1</td>
<td>4.7</td>
<td>3.5</td>
<td>3.1</td>
<td>3.1</td>
<td>2.7</td>
<td>3.5</td>
</tr>
<tr>
<td>6. instructor gave useful feedback.</td>
<td>4.2</td>
<td>4.2</td>
<td>4.7</td>
<td>3.4</td>
<td>3.8</td>
<td>2.8</td>
<td>3.6</td>
<td>4.1</td>
</tr>
<tr>
<td>7. instructor consistently treated students with respect</td>
<td>4.4</td>
<td>4.2</td>
<td>4.6</td>
<td>3.9</td>
<td>4.4</td>
<td>3.7</td>
<td>4.3</td>
<td>4.8</td>
</tr>
<tr>
<td>8. Overall, instructor was an effective teacher</td>
<td>4.4</td>
<td>4.1</td>
<td>4.8</td>
<td>3</td>
<td>3.9</td>
<td>2.4</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>9. course materials were valuable aids to learning</td>
<td>4.1</td>
<td>3.7</td>
<td>3.9</td>
<td>3</td>
<td>3.8</td>
<td>2.8</td>
<td>3.5</td>
<td>4.1</td>
</tr>
<tr>
<td>10. course assignments were valuable aids to learning</td>
<td>4.2</td>
<td>4.3</td>
<td>4.6</td>
<td>3.8</td>
<td>4.2</td>
<td>2.5</td>
<td>3.7</td>
<td>4</td>
</tr>
<tr>
<td>11. This course improved my knowledge of subject</td>
<td>4.4</td>
<td>4.3</td>
<td>4.8</td>
<td>3.5</td>
<td>3.9</td>
<td>3</td>
<td>4</td>
<td>4.3</td>
</tr>
<tr>
<td>12. Overall, this course was excellent</td>
<td>4.2</td>
<td>3.8</td>
<td>4.5</td>
<td>3</td>
<td>3.5</td>
<td>1.8</td>
<td>3.4</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Selected Student Comments

**Fall 2015 CSC 226 Discrete Math for Computer Scientists**

- Incredibly good professor. Taught material quickly and effectively. Avoided making lectures too long or boring.
- The exams were fair the and the webassign/labs were very helpful to help learn the material. The weakness would be that the textbook can be confusing when trying to learn a concept, not the best examples/explanations.
- Peer tutoring is a great idea and I liked that it was an aspect of this course. There was always some student available to help others learn material. Review sessions were helpful as well.
- An excellent and well-designed course that greatly enhanced my understanding of the concepts of Discrete Mathematics. Everything in the course objectives and tested on the exams were thoroughly covered by the lectures with extensive examples and explanations of the concepts. Dr. Barnes's lectures, course packets, Webassign problem sets, labs, and assigned readings greatly enhance students' understanding of the subject matter. Students are greatly helped with the availability of lecture notes on Piazza and the online recorded lectures when reviewing the materials. The practice test and special tests, in addition to the review lectures and peer-tutoring hours were valuable resources in learning the course.
material and preparing for the exams. Through the innovative peer-tutoring system, Dr. Barnes' office hours, the TA's office hours, the TA's recitation, and the Piazza forum, Dr. Barnes's course is structured in a way that makes obtaining help in preparing for the exams and on assignments to be the most accessible experience any students might have in any class.

**Fall 2014 CSC 226 Discrete Math for Computer Scientists**

- Instructor used class time well and made helpful examples and comparisons to make sure students understood the concepts being presented to them. Instructor was very understanding of deadline conflicts and granted extensions when they were needed. I am very appreciative of everything the instructor did, and hope to do research with the instructor in the future.
- I did like all of the different homework assignment platforms. I think they really helped with learning.
- The course was set up to allow for various types of learning, and I particularly appreciated the opportunities given to me as a peer tutor.
- Online discussion forum is a great way to ask a question and receive a reply with a matter of minutes.
- Strengths: I love how open Dr. Barnes is to her students. She is open for undergraduate research and peer tutors, and that is amazing! She is really open for everyone. As well, Dr. Barnes is a great instructor, teaching in an understandable and easy way for all students to comprehend. With her writing notes with the students, it allows the students to stay on track and not feel like they have to catch up. As well, she waits for questions that anyone may have, and it is just great. Weaknesses: Sometimes the shorthand gets confusing. A little reminder of what some of the terms mean would help during class.

**Fall 2013 Special Topics: Educational Data Mining**

- Really knowledgeable about EDM, the instructor was able to provide very useful feedback or comments on a wide range of methods, you could tell she really cared if the students understood the concept.
- The instructor clearly knew her course material, and was very helpful when asked for advice.

**Fall 2013 CSC 226 Discrete Math for Computer Scientists**

- Dr. Barnes is great! She has a real knack for explaining things and is very receptive and helpful when you ask questions in class. Her lectures, homework, labs, and tests are all very similar in structure and question style such that you really don't have an excuse to fail.
- Dr. Barnes was especially helpful with answering questions on Piazza, giving just enough information for students to effectively learn material without reciting solutions to copy down. She also provides a vast number of resources to help cover material outside of lectures, which also proved to be greatly helpful.
- She was a fantastic instructor. She listened to student feedback and was able to respond appropriately. She also provided numerous tools that were invaluable to passing the course and learning the material.
• **I was greatly impressed with the policies in this course.** It gave the impression that if you put forth the effort, you are guaranteed to pass. I absolutely love this policy and I wish that every course would adopt these same policies. It shows Dr. Barnes is more concerned with making sure we know the content, rather than if we are able to get lucky and answer something right the very first time. Also, I really love the peer tutoring system, not only was I able to help other students, but it greatly increased my own understanding of the content in the process.

• **Greatest Professor ever.** Used a lot of examples which furthered students’ understanding about the materials. Also availed all possible channels for students success. Should keep up the good job.

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**Fall 2012 CSC 226-002 Discrete Mathematics for Computer Scientists:**

• Dr. Barnes is an **inspiring and enthusiastic instructor.** She has a thorough understanding of discrete mathematics and is usually able to simplify it or present it in ways that any student can understand [...] I am particularly impressed with her courage and wisdom in **trying new things**, such as a "flipped classroom" and the use of Piazza to **promote teaching between students**. Later in the semester, she provided incentive enough that dozens of students with an "A" in the class scheduled "office hours" to provide tutoring to their peers. I [...] gained much from [this], since teaching others is an excellent way to reinforce my own understanding.

• Dr. Barnes consistently **treats her students with respect** and understanding and demonstrates a **passion to see her students succeed.** At times she would reassure them and try to find different ways to explain the same topic repeatedly until it either became a disruption to class (in which case she would answer it either in person after class or via the class forum) or they understood it. [...] she has a way of making what seems to be impossible to grasp seem easier.

• I am **incredibly glad to have had her as my instructor.** Despite all the unreasonable drama regarding the [requirement to watch pre-recorded videos], her class was remarkably straightforward and material was presented in a manner easily digested by students. Dr Barnes went well **out of her way to address questions** [...] and comments whenever they arose, and was very much **clear about her expectations** and requirements, especially regarding tests. [...] **Dr Barnes wants students to succeed, and she is an excellent instructor.**

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**B. INSTRUCTIONAL DEVELOPMENT**

• Barnes taught one CSC 200 course using her curriculum for the CS Principles: Beauty and Joy of Computing course that will match with the new CS Principles Advanced Placement course. The CSC 200 instructors have incorporated 6 labs/homeworks from this course into a redesign of CSC 200.

• A special topics class, CSC 495/591: **Interdisciplinary Game-Based Learning Design**, was developed and taught in Spring 2015 with 20 CSC and 22 education students.

• A special topics class, CSC 495/591: **Educational Data Mining**, was developed and taught in Fall 2013 with 21 students

• A special topics class, CSC 495/591: **Serious Games**, was developed and taught in Spring
2013 with 14 students
- Developed and taught CSC 226, Applied Discrete Mathematics, for the Distance Ed program at NC State, offered from Spring 2002 – 2007.

Curricular Development at UNC Charlotte, Total: 2 Certificates, 5 Graduate, 5 Undergraduate, 1 Workshop

- Undergraduate Certificate in Game Design & Development
- Graduate Certificate in Game Design & Development
- ITCS 4238/5238 Serious Games @UNCC First offer: Fall 2009
- ITCS 1203 Beauty and Joy of Computing Approved Spring 2012
- ITCS 8159 Intelligent Tutoring Systems Approved May 2007
- ITCS 6159 Intelligent Tutoring Systems Approved May 2007
- ITCS 4230 Intro. to Game Design & Development Approved May 2006
- ITCS 5230 Intro. to Game Design & Development Approved May 2006
- ITCS 4231 Advanced Game Design & Development Approved May 2006
- ITCS 5231 Advanced Game Design & Development Approved May 2006
- ITCS 2175 Logic & Algorithms (ONLINE) First offer: Spring 2008
- Video Game Development workshops for visiting students, 3 week course through International Programs, Summers 2005,2006,2008

B. MENTORING ACTIVITIES

Undergraduate Advisee Awards and Honors

1. 12 Nationally Recognized Students by NSF, NASA, Microsoft, DHS Fellowships valued at over $985,000 received by REU mentees for study in computing graduate programs
   1. National Science Foundation (NSF) Graduate Research Fellowships (GRF) ($130K each):
   2. NSF GRF Honorable Mentions:
   3. NASA GSRP Fellow ($60K):
      a. Katelyn Doran (2010-2013)
   4. Microsoft Graduate Women’s Scholarship ($15K):
      a. Veronica Catete (2012)
   5. 3 Former REUs receiving NSF GRF ($130K):
      a. Jordana Hodges 2011-2015 @ UW, Samantha Finkelstein 2011-15 @ CMU, Amy Shannon 2014-2019 @ CMU
   6. Former REU receiving Department of Homeland Security Fellowship ($130K):
      Lane Harrison 2009-2013 @ UNCC – Now a professor at Tuftts
2. 13 externally funded individual REU projects valued at $78,000 in student support
   a. 12 DREU projects funded through the CRA/CDC, 1 through McNair Scholarships
3. UNC Charlotte College of Computing Essam El-Kwae Award for Undergraduate Research Mentoring, awarded to an advisor-advisee pair for outstanding research
   a. Shaun Pickford (2011-2012)
   b. Katelyn Doran (2010-2011)
   c. Samantha Finkelstein (2009-2010)
   d. Evie Powell (2006-2007)
4. ACM Undergraduate Student Research Competition Winners
   a. Katelyn Doran, 1st place @ Tapia 2009
   b. Samantha Finkelstein, 3rd place @ Tapia 2009
   c. Michael Eagle, 1st place @ Tapia 2007

Undergraduate (and High School) Mentoring.

1. High School Research Supervised @ NC State
   1. Linnea Hollander  HSR 15-16: Bots testing
   2. Aidan Curtis HSR 15-16: Snag’em App Development
   3. Qiyuan (Jerry) Pan REHS 2014: Snap program analysis
   4. Keishla Sanchez Ortiz PREHS 2014: BJC and Snap program analysis
   5. Gerardo Serrano PREHS 2014: BotsCRAFT: Bots in MineCraft
   6. Wilmaris Rivera Medina PREHS 2014: BJC and Snap program analysis
   7. Reniel Irizarry-Del Toro PREHS 2014: BotsCRAFT: Bots in MineCraft
   8. Genesis Rosado Martinez PREHS 2013-4 Lebanese Dance game
   9. Ruben Hernandez Diaz PREHS 2013: Lebanese Dance game
   10. Christopher Alicea Nieves PREHS 2013: Snap music programming mod
   11. Joshua Pupo PREHS 2013: Snap music programming mod

2. Undergraduate Research Supervised @ NC State
   1. Erin Snider NCSU UGR Sp16: BJC rubrics
   2. Caroline Law NCSU UGR Sp16: BJC rubrics
   3. Meghana Subramaniam NCSU UGR Sp16: BJC rubrics
   5. *Markel Sanz Ausin NCSU UGR 15-16: Class analytics
   6. Hengxuan Li NCSU UGR 15-16: Class analytics
   7. Gerardo Serrano PR REU 2015: Pyrenees Probability Tutor
   8. Genesis Rosado Martinez PR REU 2015: BJC Delphi study
   9. Joshua Cook NCSU REU 2015: Bayesian Knowledge Tracing
   10. Emily Sharp NCSU Fa15 REU 2015: NutraNinja
   11. Melba Rodriguez PR PREU 2014: Lebanese Dance Game
   13. Elisabeth Frasch NCSU REU 2014: BJC CS Principles research
   14. Katherine Kjeer non-NCSU REU 2014: Justified Thought logic tutor
17. Yuri Nascimento da Silva Brazil Fa14 REU 2014: Bots Level Editor
19. Nicole Sands NCSU Sp15 Su14, Fa14: Snag’em
20. Vinaya Polamreddi NCSU Sp15 AY13-14 Honors: Hover Hints
22. Trevor Brennan NCSU Sp15 AY12-13, AY13-14, Fa14: Bots
23. Michael Clifton NCSU Sp15, Bots
24. Cameren Dolecheck NCSU Fa15 Su13, Fa13, Su14, Fa14: DT Logic
25. Aaron Quidley NCSU Fa14 AY13-14, F14 Bots & Lebanese games

3. Undergraduate Research Projects Supervised @ UNCC (*= entered CS grad. program)
26. Matthew Tremper UNCC Sr. Proj 2012-2013: Game2Learn, OrderOps
27. Stephanie Yeh non-UNCC DREU 2012: InVis and EDM
28. *Aaron Springer non-UNCC REU 2012: InVis and EDM
29. Keith Payne UNCC REU 2012: InVis and EDM
30. Mykel Pendergrass UNCC REU 2012: Exercise games
31. Maybelline Burgos UNCC REU 2012: Exercise games
32. *Nathaniel Blanchard non-UNCC REU 2012: Exercise games
33. Brian Thomas non-UNCC REU 2012: Exercise games
34. Rose Abernathy non-UNCC REU 2012: Snag’em
35. Chitra Gadwal non-UNCC REU 2012: Bead Loom Game
36. *Amy Shannon Emory, Sp14 REU2012: BeadLoom, 3rd REU Award
37. Andrew Messick UNCC Fa13 REU 2012: BOTS
38. Andrew Haskett UNCC Spr12 Sr. Proj 2012: Kinder. Reading Game
39. Derek Mayfield UNCC REU 2011: G2L: BLG & Wu’s Castle
40. Jonathan Curry UNCC REU 2011: G2L: BLG & Wu’s Castle
41. *David Brickler Morehouse REU 2011: G2L: BLG & Wu’s Castle
42. Ivanna Gutierrez Summer 2011 HS Apprenticeship (mobile phone games)
43. *Nathan Kingsley May 2012 UNCC Sr. Proj 2011: Greener & Bots
44. Ken Hinton May 2012 Shaw REU 2011: Programming tutor
45. *Javier Olaya Kean Univ. Sp12 REU 2011: Bots
46. Zach Lehmann UNCC Sp12 Fa12: Greener
47. Victoria Cooper Randolph-Macon Coll Sp 12 REU 2011: Bots
48. Shaun Pickford UNCC Fa11 REU10-11: CSDT online, Dance Tool, Greener
   • 2011-2012 CCI Essam El-Kwae Undergraduate Research Award
   • Working at Microsoft, Charlotte
49. *Dustin Culler UNCC Fa11 REU10-11: CSDT online, Greener
50. Meena Seralathan Haverford Sp11 DREU 2010: Final Reality iPhone
51. *Joshua Situka U. Houston Sp11 REU 2010: Bots
52. Lance Newby UNCC Sp11 Sr Proj. F09: Charlotte Dancesport
53. Thomas Phifer Winthrop Sp11 REU09-11 & AY09-10: Snag’em
54. *Samantha Finkelstein UNCC Sp11 REU08, AY09-10: Games for autism
   • 2009-2010 CCI Essam El-Kwae Undergraduate Research Award
   • 2011 NSF Graduate Research Fellow (at Carnegie Mellon)
   • 3rd place, ACM SRC, Tapia 2009
55. *Jordana Hodges UNCC Sp11 REU07: Australian Fire Game
2011 NSF Graduate Research Fellow (at University of Washington)
56. Bethany Miller  App State Sp10  REU09: Bunny Generals & Heaps
57. *Veronica Catete  NCSU Fa10  REU 2010: Bots
58. *Rachel Brinkman  Grove City Sp10  DREU 2009: Table Tilt
59. *Antoine Campbell  UNCC Sp10  REU09,10: G2L Bunny Generals
60. *Christie Thornton  UNCC Sp09  REU09 & CREU09-10: Dance Tool
61. *Katelyn Doran  UNCC Sp10  REU08 & AY08-10: Bunny General

2010-2011 CCI Essam El-Kwae Undergraduate Research Award
63. *Hanan Al Nizami  Youngstown St Sp09  DREU 2008: Dance Tool
64. Michelle Chamberlain  Brooklyn Coll Sp09  DREU 2007-8: Game2Learn
65. *Drew Hicks  Marietta Coll Sp09  REU 2008: Game2Learn
66. Henry Van Eseltine  UNCC Sp09  Sr Proj 08-09: Game2Learn
67. Joshua Darnell  UNCC Sp09  Sr Proj 08-9,REU09: Dance Tool
68. *Lane Harrison  UNCC Sp09  Sr Proj 08-9: cMotion game
69. *Shana Collins  JCSU Sp08  McNair 2006-7: Ed. Data Mining
70. *Laura Hassey  UNCC Sp08  STARS REU07-8: Evaluation
71. Abigail Corfman  Oberlin Sp08  REU07: G2L Logo Game
72. Taylor Dubois  Penn State Sp08  REU 07: G2L Bunny Arrayser
73. *Michael Eagle  UNCC Fa07  REU07/ Sr. Proj: G2L Wu’s Castle

First place, ACM SRC, Tapia 2007
74. *Eve Powell  UNCC Sp07  REU06/ Sr. Proj: G2L Saving Sera
75. Dimitris Couchell  UNCC Fa07  Sr Proj 2007: G2L Unreal Dev.
76. Tiffany Ralph  Colorado State Sp07  DREU 2006: G2L, works @ Google
77. Paige Matthews  Wofford Sp07  DREU 2006: Game2Learn
78. Hyun Jordan  Lynchburg Coll Sp07  DREU 2006: G2L
79. *Casey Paver  UNCC Fa06  Sr Proj/Ind.Study 05-6: G2L in Flash
80. *Alex Godwin  UNCC Fa06  REU06/ Sr. Proj: MMO weather
81. *Amanda Chaffin  UNCC Sp06  REU06/ Sr. Proj: G2L Catacombs
82. Brian Ingles  UNCC Sp06  Sr Proj 05-06: Building Java Games
83. David Markham  UNCC Sp06  Sr Proj 05-06: Game2Learn
84. Nathaniel Watson  UNCC Sp06  Sr Proj 05-06: Game2Learn
85. *Rachael Dwight  UNCC Fa05  Sr Proj 05-06: Coding in DLLs
86. Carson Black  UNCC Sp05  Sr Proj 04-05: Director’s Assistant
87. Daniel Curtis  UNCC Sp05  Sr Proj 04-05: Director’s Assistant

Student Organizations @ NC State
Faculty Advisor, International Game Developers Association (2012-Present)
Faculty Advisor, STARS Alliance Student Organization (2012-Present)

Student Organizations @ UNC Charlotte
Faculty Advisor, 49er Social and Ballroom Dance Club (2005-2012)
Faculty Advisor, ACM-Women (2007-2012)
Faculty Advisor, Gamer’s Alliance (2006-2012)

Graduate Committees (Total: 13 @ NC State, 9 while @ UNC Charlotte).

1. Brittany Johnson, PhD. Committee, Spring 2016
2. Chen Lin, Ph.D. Written Qualifying Committee, Spring 2016
3. Adam Amos-Binks, Ph.D. Written Qualifying Committee, Fall 2015
4. Russell Meredith, Ph.D. Written Qualifying Committee, Fall 2015
5. Philip Buffum, Ph.D. Written Qualifying Committee, Spring 2015
6. Fernando Rodriguez, Ph.D. Written Qualifying Committee, Fall 2014
7. Ignacio Dominguez, Ph.D. Written Qualifying Committee, Summer 2014
8. Justus Robertson, Ph.D. Written Qualifying Committee, Spring 2014
9. Lihua Hao, Ph.D. Written Qualifying Committee, Spring 2013
10. Joseph Grafsgaard, Ph.D. Committee, 2013
11. Jennifer Sabourin, Ph.D. Committee, 2013
12. Aysu Ezen, Ph.D. Committee, Fall 2014; Ph.D. Written Qualifying Committee, 2013
13. Julio Bahamon, Ph.D. Written Qualifying Committee, 2013
14. Kristy Boyer, PhD. Committee 2010 (External member while faculty at UNC Charlotte)
15. Lalit Ponnala, PhD. Committee 2007 (External member while faculty at UNC Charlotte)

PhD Committees at UNC Charlotte, Total: 7

1. Pamela Thompson, 2012
2. Fritz Heckel, 2011
3. Hunter Hale, 2011
4. Wenxin Jiang, 2009
5. Rory Lewis, 2008
7. Sabarish Babu, 2007

Masters Thesis at UNC Charlotte, Total: 2

8. Priyesh Dixit, 2008
9. Kalpani Tiwani, 2005

C. MASTERS AND DOCTORAL THERSES DIRECTED

Table 5. Summary of Post-Doc and Graduate Student Advising and Mentoring.

<table>
<thead>
<tr>
<th>Post-Docs Previously Supervised</th>
<th>2 NCSU, 1 UNCC</th>
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<tbody>
<tr>
<td>PhD Students Graduated @ NC State</td>
<td>2</td>
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</tbody>
</table>
PhD Students Currently Advised | 7
---|---
PhD Students Graduated @ UNC Charlotte | 4
MS Students Graduated @ NC State | 1
MS Students Graduated @ UNC Charlotte | 16
MS Students Currently Advised | 2

Graduate Advisee Awards and Honors

**NCSU**

Acey Boyce
- 2013 selected for first PhD internship program at Turbine Games
- 2010 National Science Foundation Graduate Research Honorable Mention
- 2009-2012 Graduate Assistantships in Areas of National Need (GAANN) Scholarship

Veronica Catete
- 2012-2013 Microsoft Research Graduate Women’s Scholarship
- 2012-2016 National Science Foundation Graduate Research Fellowship

Andrew Hicks
- 2011-2015 National Science Foundation Graduate Research Fellowship
- 2009-2012 Graduate Assistantships in Areas of National Need (GAANN) Scholarship

Michael Eagle
- 2013 selected for first PhD internship program at Turbine Games
- 2008 National Science Foundation Graduate Research Honorable Mention
- 2008-2012 Graduate Assistantships in Areas of National Need (GAANN) Scholarship
- 2010 NSF EAPSI Fellowship to study in Japan for 6 weeks
- ACM FDG 2009 Doctoral Consortium Scholarship
- 2007 Tapia ACM Undergraduate Student Research Competition 1st Place Winner

Alexandra Milliken
- 2015 National Science Foundation Graduate Research Honorable Mention

Thomas Price
- 2015 National Science Foundation Graduate Research Honorable Mention

**UNC Charlotte**

Matthew Johnson
- First foreign national hired at Square Enix Japan, started June 2013

Andrea Nickel
- 2008-2013 Graduate Assistantships in Areas of National Need Scholarship

Amanda Chaffin
- 2008-2013 Graduate Assistantships in Areas of National Need Scholarship

Post-Docs Supervised (Total: 3)

Wanda Eugene (June 2012-Jan 2013)
Jennifer Albert (Jan 2014-Aug 2015)

**Current Ph.D. Advising (Total: 9)**

**NC State**
1. Veronica Catete
2. Christa Cody
3. Yihuan Dong
4. Andrew Hicks
5. Aurora Liu
6. Alexandra Milliken
7. Behrooz Mostafavi
8. Thomas Price
9. Rui Zhi

**Current M.S. Advising (Total: 1)**
1. Adithya Seshadri, Spring 2016, Modeling Social Interactions in Discrete Math

**PhD Students Graduated at NC State (Total: 2)**
1. Michael Eagle, December 2015, Dissertation: *Data-Driven Methods for Deriving Insight from Educational Problem Solving Environments*; Hired at Carnegie Mellon as a Postdoctoral Researcher; NSF Graduate Research Honorable Mention
   Hired at Turbine Games as Games Analyst
   NSF Graduate Research Honorable Mention

**PhD Students Graduated at UNC Charlotte (Total: 4)**
1. John Stamper, May 2010, Dissertation: *Automatic generation of intelligent tutoring capabilities via educational data mining*
   Hired at Carnegie Mellon as an Assistant Professor, August 2015
   Hired at Carnegie Mellon as a System Scientist, August 2009
   2007 AIED, 2006 AAAI Doctoral Consortia
   2007 NSF EAPSI Fellow for study in Korea
2. Eve Powell, August 2012, Dissertation: *A framework for the design and analysis of socially pervasive games*
   Started own games company Verge of Brilliance, summer 2015
   Hired at Microsoft Xbox as a Program Manager, August 2012
   2008 NSF Graduate Research Fellow
   2007 GAANN Fellow, 2007 CCI Essam El-Kwae Undergraduate Research
Award

   Hired at Square Enix, Japan, June 2013

M.S. Students Graduated @ NC State (Total: 3)

1. Vikas Pidempally
2. Vinay Sheshadri

MS Students Graduated @ UNC Charlotte (*=received PhD in CS)

- Amanda Chaffin (2009)
  - Thesis: Game2Learn: Building a compiler into a game engine to increase learning gains in computer science students
  - 2009 GAANN Fellow
- Katelyn Doran S12 Greener Challenge, Citizen Schools Game Curriculum
  - 2010-2013 NASA Graduate Student Research Project Fellow
  - 2012 NSF Graduate Research Honorable Mention, MS 2012
- Dustin Culler S12 CSDT Community games, Greener Challenge
- Leena Joseph S11 Educational Data Mining
- Antoine Campbell S12 CSDT Community games, Greener Challenge
- Rachel Brinkman S12 Educational Data Mining and Games
- Laura Hassey F09 STARS Alliance Evaluation
- Sandhya Charugulla F09 CSDT Dance Tool Game Development
- Su Hyung Cho S09 CSDT Dance Tool Game Development
- Isaac Moore S06 Coding In-Game Requirements Engineering
- Johnny Hopkins F05 Networking for Game2Learn
- *Ted Carmichael S05 Intelligent Tutoring for Nurse Training
- Rath. Ramanujam S05 The Q-Matrix Method for Face Recognition
- Rath. Ramanujam F04 Modeling Protein Translation in Prokaryotes

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Masters students at UNC Charlotte are not required to do a formal thesis, but are encouraged to do MS projects.
III. SCHOLARSHIP IN THE REALMS OF FACULTY RESPONSIBILITY

A. PUBLICATIONS

Authorship Policy: Since 2005 it has been the policy of Barnes’s laboratory for Barnes to appear as the final author for publications co-authored with her graduate and undergraduate students unless publication stemmed from an invitation extended to Barnes or publication presents a summary of her research group’s work. Author names are italicized if the publication was written while that author was a student.

Magazine Articles (Total: 1)


Peer-Reviewed Journal Articles (Total: 15)


J6. Teresa Dahlberg, Tiffany, Barnes, Kim Buch, and Audrey Rorrer. 2011. The STARS Alliance: viable strategies for attracting, retaining, supporting, and developing

7 A peer-reviewed, invited extension of AIED 2011 Best paper nominee conference paper of same title.

8 A peer-reviewed, invited extension of ITS 2010 Best paper nominee conference paper of same title.
underrepresented students in computing. ACM Transactions on Computing Education

J7. Teresa Dahlberg, Tiffany Barnes, Karen Bean, and Kim Buch. 2010. Engaging Under-
represented Computer Science Students in Service: An Innovative Course and Case
169-180.

J8. Tiffany Barnes and John Stamper. 2010. Automatic hint generation for logic proof
tutoring using historical data. Journal of Educational Technology & Society, Vol. 13,
Issue: 1- Special issue on Intelligent Tutoring Systems, pp. 3-12.9

Leadership Corps: An innovative computer science learning community. Learning
Communities Journal, 1, 5-18.

computing identity as a model for prioritizing dynamic K-12 computing curricular

J11. Sarah B. Berenson, Maria Droujkova, Laurie Cavey, Nancy Smith, and Tiffany
Barnes, 2000. Girls on Track with information technology. Meridian, 3 (1), Winter


Refereed Book Chapters (Total: 6)

Problem Solving. Accepted to appear in: Design Recommendations for Intelligent
Tutoring Systems: Domain Modeling (Volume 4).

problem-solving visualization and automatic hint generation. Handbook on Educational
Data Mining. CRC Press.


for propositional proof construction. In Philip Brey, Adam Briggle and Katinka Waelbers
(eds.), Proceedings of the 2007 European Computing And Philosophy Conference,
Amsterdam, Netherlands: IOS Publishers. (30 presenters invited to submit full papers; 76
abstracts presented).

information technology, In: Trauth, E. (Ed.). Encyclopedia of Gender and Information

9 A peer-reviewed, invited extension of ITS2008 Best Paper nominee conference paper of
same title.


Refereed Conference Publications (Total: 74)


CP31. Amanda Chaffin and Tiffany Barnes. 2010. Lessons from a course on serious


Refereed Workshop Publications (Total: 12)


Refereed Conference Posters, Panels, Workshops, and Demo Abstracts in Conference Proceedings (Total: 31)


A4. Tiffany Barnes, Acey Kreisler Boyce, Veronica Catete, Katelyn Doran, Andrew Hicks, Leslie Keller: Augmenting introductory computer science classes with GameMaker and mobile apps (abstract only). SIGCSE 2013: 767.


**Dissertation** (Total: 1)


**Introductions to Edited Conference and Workshop Proceedings, Special Issues** (Total: 4)


**Invited Lectures and Keynote Addresses – National and International** (Total: 7)
1. Tiffany Barnes. **Keynote Speaker.** ACMSE Conference, Kennesaw State University, March 29, 2014.


3. Tiffany Barnes. **Keynote Speaker.** STARS Celebration, Hampton, VA, August 2012.


5. Tiffany Barnes, Anne McLaughlin, Amos Zeeberg, James Bower, Lucy Bradshaw (March 2010). With great power comes great responsibility: The future of video games. **Invited Speaker for South by Southwest** (SXSW2010) Interactive panel, Austin, TX, March 12, 2010.


**Invited Lectures RTP, Regional, and at other universities (Total: 9)**


**Invited Lectures @ NC State (Total: 3)**

1. Tiffany Barnes. Educational data mining. Friday Institute, NC State University, April, 2014.


**Other Presentations at Professional Meetings (Total: 15)**


FL, August 9-12, 2009.


Professional Honors

- Award: Best Paper Award Nominee
  Conference: *15th international conference on Artificial Intelligence in Education* (AIED'11)
  Venue: Auckland, New Zealand, 2011

- Award: Best Paper Award Nominee
  Conference: *9th international conference on Intelligent Tutoring Systems* (ITS ’08)
  Venue: Montreal, Canada, 2008

- Award: Best Student Paper
  Conference: *10th international conference on Intelligent Tutoring Systems* (ITS ’10)
  Venue: Philadelphia, PA, 2010

- Award: NSF CAREER Award
  Organization: National Science Foundation
  Dates: September 2009-2015

- Award: Faculty Research Award Nominee
  Organization: *UNC Charlotte College of Computing and Informatics*

- Award: Woman of the Year Award Nominee
  Organization: *UNC Charlotte*
  Dates: Academic Year 2008-2009

- Award: Microsoft New Faculty Fellowship Nominee
  Organization: Microsoft, Nominated as sole candidate from UNC Charlotte

- Award: Denice Denton Emerging Leader Award Nominee
  Organization: Anita Borg Institute
  Dates: Nominated each year 2007, 2009, 2010

- Recognition: Selected as one of 5 first pilots for Advanced Placement Computer Science Principles course
  Organization: College Board
  Dates: 2010-2011

B. SPONSORED RESEARCH (Total: $12,310,033)

Externally Funded Research Sponsorship (Category Total: $12,210,033).
Grants: Barnes - Sole PI (Sub-category Total: $2,224,998, Subtotal to NCSU: $1,186,601)

- **Track 2: CS10K: BJC-STARS: Scaling CS Principles through STARS community & leadership development**
  Agency: National Science Foundation
  Program: CNS-STEM+C
  Grant number: 1542922
  10/1/2015-9/30/2018
  $500,000
  PI: Tiffany Barnes

- **Collaborative Research: Modeling Social Interaction and Performance in STEM Learning**
  Agency: National Science Foundation
  Program: Data-intensive Research on Learning
  Grant number: 1418269
  9/1/2014-8/31/2017
  $200,000
  PI: Tiffany Barnes

- **REU Site: Intelligent and Interactive Media: Designing and evaluating serious games, narrative and visual experiences, interfaces, and intelligence for games and education**
  Agency: National Science Foundation
  Program: Research Experiences for Undergraduates
  Grant number: CNS-1262899
  2013—2016
  $360,000
  PI: Tiffany Barnes

- **Adding new STARS to support and extend the CS10K project**
  Agency: National Science Foundation
  Program: Broadening Participation in Computing - Alliances
Grant number: CNS-1042468 subcontract; independently funded supplement
2013—2014
$150,000 - Additional funds for 2016: $39,164
PI: Tiffany Barnes

- **Collaborative Research: Type I: FRABJOUS CS — Framing a Rigorous Approach to Beauty and Joy for Outreach to Underrepresented Students in Computing at Scale**
  Agency: National Science Foundation
  Program: Computing Education for the 21st Century
  Grant number: CNS-113858
  2011—2014
  $432,000 awarded at UNC Charlotte, $352,831 transferred to NC State, $86,000 supplement awarded at NCSU April 2014
  PI: Tiffany Barnes

- **CAREER: Educational Data Mining for Student Support in Interactive Learning Environments**
  Agency: National Science Foundation
  Program: Advanced Learning Technologies
  Grant number: IIS 0845997
  2009—2014
  $646,982 awarded at UNC Charlotte, $237,770 subcontracted to NC State
  PI: Tiffany Barnes

- **Math Fluency Data Collaborative.**
  Agency: Educause
  Program: Next Generation Learning Challenge
  2011—2012
  $104,907 subcontract to UNC Charlotte from Carnegie Learning (lead institution)
  Subcontract PI: Tiffany Barnes

- **Computer Science Principles Pilot.**
  Agency: College Board (with funding from NSF)
  2011—2012
  $20,000
  PI: Tiffany Barnes

- **Game2Learn: Creative Computing Education.**
  Agency: National Science Foundation
  Program: Creative IT
  Grant number: IIS 0757521
  2008—2012
  $216,000
  PI: Tiffany Barnes

- **Collaborative Research: BPC-D: Improving Minority Student Participation in the Computing Career Pipeline with Culturally Situated Design Tools (CSDTs).**
  Agency: National Science Foundation
Program: Broadening Participation in Computing
Grant number: CNS-0634342
2007—2011
$235,109
PI: Tiffany Barnes

- **Developing Smart Phone Applications for Earth Science Graduate Student Research Project at Stennis Space Center.**
  Agency: National Aeronautics and Space Administration
  Program: Graduate Student Research Project
  Grant number: NNX10AK75H
  2010—2012
  $60,000
  PI: Tiffany Barnes

**Grants: Barnes - Lead PI on Multi-PI grant (Sub-category Total: $249,604)**

- **CREU Charlotte: GameChanger: promoting health and wellbeing with games**
  Agency: Computing Research Association
  Program: Collaborative Research Experiences for Undergraduates
  2013—2014
  $29,500
  PI: Tiffany Barnes (This grant was transferred to co-PI per grant rules)
  Co-PI: Jamie Payton (UNC Charlotte)

- **Envision Charlotte: Growing Greener Game**
  Agency: Duke Energy Corporation
  Program: Envision Charlotte
  2011
  $190,604 (supplemented by UNC Charlotte College of Computing & Informatics for $50K)
  PI: Tiffany Barnes
  Co-PIs: Michael Youngblood and Heather Lipford (UNC Charlotte)

- **CREU Charlotte: SNAG: Social Networking and Games**
  Agency: Computing Research Association
  Program: Collaborative Research Experiences for Undergraduates
  2009—2010
  $29,500
  PI: Tiffany Barnes
  Co-PI: Teresa Dahlberg and Jamie Payton (UNC Charlotte)

**Grants: Barnes – Co-PI on Multi-PI grant (Sub-category Total: $9,653,431)**

- **Educational Data Mining for Individualized Instruction in STEM Learning Environments**
  Agency: National Science Foundation
  Program: Improving Undergraduate STEM Education (IUSE)
  Grant number: 2015-2018
$639,401
PI: Min Chi
Co-PI: Tiffany Barnes

- **Evaluation for Actionable Change: A Data-Driven Approach**
  Agency: National Science Foundation
  Program: Division of Graduate Education: PRIME
  Grant number: 1544273
  1/1/2016-12/31/2019
  $799,837
  PI: Teomara Rutherford, Co-PIs: Tiffany Barnes, Collin Lynch, Matthew Peterson

- **BPC-AE: Scaling the STARS Alliance: A National Community for Broadening Participation through Regional Partnerships**
  Agency: National Science Foundation
  Program: Broadening Participation in Computing - Alliances
  Grant number: CNS-1042468
  2011—2016
  $4,049,367
  PI: Teresa Dahlberg (UNC Charlotte)
  Co-PIs: Tiffany Barnes, Heather Lipford (UNC Charlotte)

- **REU Site: Exploring Human Centered and Socially Relevant Interactive Technologies in Computer Vision, Visualization, Pervasive Computing, Serious Games, & Social Networks**
  Agency: National Science Foundation
  Program: Research Experiences for Undergraduates
  Grant number: CNS-1156822
  2012—2015
  $300,000
  PI: Jamie Payton (UNC Charlotte)
  Co-PIs: Tiffany Barnes (UNC Charlotte)

- **REU Site: Socially Relevant Computing Research: Visualization, Virtual Environments, Gaming, and Networking**
  Agency: National Science Foundation
  Program: Research Experiences for Undergraduates Site
  Grant number: CNS-0851745
  2009—2011
  $393,561
  PI: Teresa Dahlberg (UNC Charlotte)
  Co-PIs: Tiffany Barnes

- **BPC-AE: The STARS Alliance: The Southeastern Partnership for Diverse Participation in Computing**
  Agency: National Science Foundation
  Program: Broadening Participation in Computing - Alliances
  Grant number: CNS-0739216
  2008—2011
$3,009,870
PI: Teresa Dahlberg (UNC Charlotte)
Co-PI: Tiffany Barnes

- **BPC-A: The STARS Alliance**: The Southeastern Partnership for Diverse Participation in Computing
  Agency: National Science Foundation
  Program: Broadening Participation in Computing - Alliances
  Grant number: CNS-0540523
  2006—2019
  $ 2,228,640
  PI: Teresa Dahlberg (UNC Charlotte)
  Co-PI: Tiffany Barnes

**Gifts, Equipment Donations, & Additional Support (Category Total: $ 99,500)**

- **NCWIT Undergraduate Research Mentoring Award**
  From NCWIT
  2016
  $5,000
  PI: Tiffany Barnes

- **Minecraft in STEM education: A review**
  Donation to NCSU from Microsoft
  2015
  $6,500
  PI: Tiffany Barnes

- **Marine Ops: Developing a Game Prototype for Marine History**
  Donation to UNC Charlotte College of Computing & Informatics
  2011
  $10,000
  PI: Tiffany Barnes

- **Distributed REU and McNair support of Undergraduate Research Mentees**
  12 DREU projects funded through the CRA/CDC, 1 through McNair Scholarship
  2005-2015
  $78,000 ($6000 per student)
  Research Advisor: Tiffany Barnes

**UNC-Charlotte Funded Research and Equipment Sponsorship (Category Total: $100,000)**

- **Envision Charlotte: Growing Greener Game**
  UNC Charlotte College of Computing & Informatics
  2012
  $50,000
  PI: Tiffany Barnes

- **Establishment of Games+Learning Lab**
UNC Charlotte College of Computing & Informatics  
2006  
$50,000  
PI: Tiffany Barnes  
Co-PI: Michael Youngblood

C. CROSS-DISCIPLINARY ACTIVITIES

Department of History, NC State University

Joint project with Akram Khater (Department of History).

*Cedars in the Pines: The Lebanese in North Carolina*  

Department of Mathematics Education, NC State University

Joint project with Hollylynne Lee (Department of Mathematics Education).

*Teaching Statistical Concepts to Middle School Students*  
IV. EXTENSION AND ENGAGEMENT WITH CONSTITUENCIES OUTSIDE THE UNIVERSITY

Professionally Relevant Community Service

- NC State Girls Code and Create Camp 2014, 2015, 2016, 1 week
- NC State Game Development Summer Camp 2013, 1 week
- STARS Haiti Spring Break Computing Outreach Program Director March 5-19, 2012
- UNC Charlotte Middle School Summer Camps 2012
  - “Exploring Math, Science, and Computing through Games!”
  - “Super (Computer) Science Investigators”
- Established & Advised New Peer Outreach STARS Leadership Team, Fall 2009
- Assisted with Peer-Led Team Learning for ITCS 1215 (CS 2 course)
- Established mentoring program for CS undergraduates
- GameCATS STARS Leadership Team advisor
- Citizen Schools 10-week Game Development after school program, grades 6-8, 2009-2012.
- Outreach on game development and careers, Fall 2007-2012 (Including: Berry Academy & Kannapolis Middle School Career Days 2008, Microsoft career day at UNCC 2009)
- Outreach using Culturally Situated Design Tools, Fall 2007-Fall 2009 (Including: Kannapolis Middle School, ImaginOn, Charlotte After School Enrichment Program).
- UNC Charlotte Game Lab Demonstrations, 2-3 monthly for K-12 and higher visitors since 2007.
- NC State Computer Science Departmental ABET/CAC Accreditation Coordinator - 2004
- Founder: NC State Computer Science Graduate Student Speaker Series (1999-2001)
- NC State Women in Computer Science Founding Member (2003-2004)

**Interviews**

V. TECHNOLOGICAL AND MANAGERIAL INNOVATIONS
N/A
VI. SERVICE TO THE UNIVERSITY AND PROFESSIONAL SOCIETIES

University Service

Administrative
- Planning for Digital Games Research Center, 2012-2013

Committee Service and University, Peer Teaching Evaluation, and Colloquia Organization
- NC State Park Scholars Application Reviewer and Interviewer, 2012
- Peer Evaluator, CSC Peer Teaching Evaluation Program
  - Conducted Teaching Evaluation, 2016 (for C. Savage)
  - Conducted Teaching Evaluation, 2012 (for N. Samatova)

UNC Charlotte Departmental Committees
- Member, UNCC CS Departmental Review Committee, May 2010-2012
- Member, UNCC Computer Science Full Professor Recruiting Committee, Spring 2010-2012
- Chair, Computer Science Undergraduate Committee, Fall 2010-Spring 2011
- Chair, Computer Science Awards Committee, Fall 2006-Fall 2009
- Computer Science Peer review of teaching committee, Fall 2007-Spring 2008.
- Chair, Computer Science Faculty Search Committee, Fall 2005-Spring 2006
  - Successfully recruited and hired 4 new faculty members. Responsible for recruiting all six top candidates invited for interviews.
- Bioinformatics Faculty Search Committee, Fall 2004-Spring 2005
- Bioinformatics Curriculum Development Committee, Fall 2004-Spring 2005

UNC Charlotte College of Computing & Informatics Committees, Centers & Institutes
- ACM Peer Tutoring Program Director (2010-2011)
- Education Strategy Committee (2010-2012)
- College Strategic Planning (2009-2012)
- Visualization Center (2005-2012)
- Diversity in Information Technology Institute (2004-2012)
- Chair, College Retreat Followup Recommendations Committee (Spring 2005)
- Diversity Committee (2004-2006)
• Marketing Committee (2004-2005)
• Parliamentarian for College Faculty Meetings, (2005-2006)

National and International Activities

Journal Associate Editorship

• Associate Editor 2016-Present
  *IEEE Transactions on Learning Technologies*
  Editor: Peter Brusilovsky

• Associate Editor 2008-2010
  *Journal of Educational Data Mining*
  Editor: Kalina Yacef, Co-Associate Editors: Ryan Baker, Joseph Beck

Journal Special Issues Edited (Total: 5)

• Special Issue on AI in Computer Science Education, Forthcoming, 2016.
  *Intl. Journal of AI in Education*
  Co-Guest Editors: Nguyen-Thinh Le, Kristy Boyer, Sharon I-Han Hsiao, Sergey Sosnovsky

• Special Issue on “Best of Respect, Volume II.” May-June 2016.
  *Computers in Science and Engineering*
  Co-Guest Editors: Jamie Payton, George Thiruvathukal, Kristy Boyer, Jeff Forbes

• Special Issue on “Best of Respect, Volume II.” Mar-Apr 2016.
  *Computers in Science and Engineering*
  Co-Guest Editors: Jamie Payton, George Thiruvathukal, Kristy Boyer, Jeff Forbes

• Special Issue on Serious Games 2009
  *IEEE Computer Graphics and Applications*
  Co-Guest Editors: L. Miguel Encarnação, Chris Shaw

• Special Issue on Serious Games 2009
  *IEEE Computing Now*
  Co-Guest Editors: L. Miguel Encarnação, Chris Shaw

Edited Conference and Workshop Proceedings, Special Issues (Total: 8)


**Organization of International Conferences and Workshops**

- General Co-Chair: ACM SIGSCE 2017.
- Program Co-Chair: ACM SIGCSE 2016.
- General Co-Chair: STARS Celebration, August 2015.
- General Co-Chair: IEEE RESPECT conference, August 2015, August 2016.
- Program Co-Chair: Foundations of Digital Games, April 2014
- Program Chair: 2nd Intl. Conference on Educational Data Mining 2009
- General Conference Chair: 6th Annual STARS Celebration 2011
- General Conference Chair: 1st Intl. Conference on Educational Data Mining, June 2008
- Steering Committee: International Educational Data Mining Society & Conference, 2008-Present
• Co-Chair: Educational Data Mining Workshop (AIED 2008)
• Co-Chair: Educational Data Mining Workshop (AAAI 2006)
• Steering Committee: 3rd Annual ACM Game Development in Computer Science Education, 2008
• Organizing Committee: STARS Celebration Conference 2006-2009

Program Committee Membership
• ACM Learning @ Scale, 2016
• Learning Analytics (LAK) 2016
• International Conference on Artificial Intelligence in Education 2013-Present
• ACM International Conference on Foundations of Digital Games 2010-Present
• International Conference on Intelligent Tutoring Systems 2010-Present
• International Conference on Educational Data Mining 2008-Present
• Educational Data Mining Workshop at AAAI International Conference of Artificial Intelligence 2005.
• 2nd Annual Academic Days on Game Development in Computer Science Education 2007
• 45th ACM Southeast Conference (ACMSE 2007)

Journal & Book Chapter Reviewing
• International Journal of Artificial Intelligence in Education 2011, 2015
• Learning Analytics 2012
• Presence 2010
• Handbook of Educational Data Mining, 2009 (Book chapter)
• IEEE Transactions on Computational Intelligence and AI in Games, 2009 & 2010
• Applied Psychological Measurement 2008-2012
• IEEE Computer, BPC column, 2008
• Psychometrika 2007
• Journal of Game Development, Jan 2007
• Journal of Computer Programming, Aug 2006
• Communications of the ACM, 2006
• IEEE Engineering in Medicine & Biology Magazine Special Issue on Bioinformatics 2005

Conference Reviewing
• Artificial Intelligence in Education 2007-Present
• Educational Data Mining 2008-Present
• Intelligent Tutoring Systems 2012-Present
• ACM CHI Conference on Human-Computer Interaction (CHI) 2007, 2011
• Association of Computing Machinery (ACM) Southeast Conference 2007
• ACM Special Interest Group on Computer Science Education Symposium 2006-2014
• ACM Innovation and Technology in Computer Science Education 2009, 2010
• ACM Intelligent User Interfaces 2012
• Grace Hopper Celebration of Women in Computing 2006, 2009
• Intl. Conf. Florida Artificial Intelligence Research Society (FLAIRS) 2007-2012
• ACM 3rd Annual Academic Days on Game Development in Computer Science Education 2008
• 2nd Annual Academic Days on Game Development in Computer Science Education 2007
• ACM Foundations of Digital Games 2009-2014

National and International Grant Reviewing (Total: 8 panels)
1. Grant Reviewer, National Science Foundation, 2015. (1 Panel)
2. Grant Reviewer & Panelist, National Science Foundation, 2013. (1 Panel)
3. Grant Reviewer & Panelist, National Science Foundation, 2011. (1 Panel)
4. Grant Reviewer & Panelist, National Science Foundation, 2010. (1 Panel)
5. Grant Reviewer & Panelist, National Science Foundation, 2008. (2 Panels)
6. Grant Reviewer & Panelist, National Science Foundation, 2006. (1 Panel)
7. Grant Reviewer & Panelist, National Science Foundation, 2005. (1 Panel)
8. Kuwait National Grant Reviewer, 2012

Professional Leadership and Affiliations

- International Artificial Intelligence in Education Society Board 2016-2019
- International Educational Data Mining Society Executive Steering Committee 2008-Present
- STARS Executive Steering Committee 2010-Present
- ACM SIGCSE Board At-Large Member June 2010-2016
  ACM Special Interest Group on Computer Science Education (SIGCSE)
- Member: Association for Computing Machinery, Artificial Intelligence in Education

Advisory Boards

- 2013-2014 NSF CE21 project at University of Delaware
- 2009-2011 College Board – New Advanced Placement Course in Computer Science Principles
- 2013 NSF REESE - Empirical Research Project on STEM learning in formal and informal settings,
  PIs: Art Graesser, Sidney D’Mello, Andrew Olney