SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed
Gaming Against Plagiarism

Requested Amount: $298,660
Requested Starting Date: 09/01/10
Proposed Duration (1-60 Months): 24 months

CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR (GPG I.G.2)
☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG I.C.1.e)
☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, I.C.1.d)
☐ HISTORIC PLACES (GPG II.C.2.j)
☐ EAGER (GPG II.D.2) ☐ RAPID** (GPG II.D.1)
☐ VERTEBRATE ANIMALS (GPG II.D.6) IACUC App. Date
☐ HUMAN SUBJECTS (GPG II.D.7) Human Subjects Assurance Number
☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)
☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.G.1)

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**CERTIFICATION PAGE**

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the Authorized Organizational Representative or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, lobbying activities (see below), responsible conduct of research, nondiscrimination, and flood hazard insurance (when applicable) as set forth in the NSF Proposal & Award Policies & Procedures Guide, Part I: the Grant Proposal Guide (GPG) (NSF 10-1). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

**Conflict of Interest Certification**

In addition, if the applicant institution employs more than fifty persons, by electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of the NSF Proposal & Award Policies & Procedures Guide, Part I: Award & Administration Guide (AAG) Chapter IV.A; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution’s expenditure of any funds under the award, in accordance with the institution’s conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

**Drug Free Work Place Certification**

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Grant Proposal Guide.

**Debarment and Suspension Certification**

(If answer “yes”, please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?  

- Yes ☐  
- No ☒

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Grant Proposal Guide.

**Certification Regarding Lobbying**

The following certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

**Certification for Contracts, Grants, Loans and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure of Lobbying Activities,” in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

**Certification Regarding Nondiscrimination**

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide.

**Certification Regarding Flood Hazard Insurance**

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

1. Community in which that area is located participates in the national flood insurance program; and
2. Building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

1. For NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
2. For other NSF Grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

**Certification Regarding Responsible Conduct of Research (RCR)**

(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Part II: Award & Administration Guide (AAG) Chapter IV.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The undersigned shall require that the language of this certification be included in any award documents for all subawards at all tiers.

**AUTHORIZED ORGANIZATIONAL REPRESENTATIVE**  
**SIGNATURE**  
**DATE**

**NAME**

**TELEPHONE NUMBER**  
**ELECTRONIC MAIL ADDRESS**  
**FAX NUMBER**

---

*EAGER - Early-concept Grants for Exploratory Research**  
**RAPID - Grants for Rapid Response Research**
The NSF Ethics and Education in Science and Engineering funding will support the University of Florida's development of Gaming Against Plagiarism (GAP). This online, self-directed, interactive game will provide a role adopting environment in which Science, Technology, Engineering, and Mathematics (STEM) graduate students will learn to recognize and avoid plagiarism. GAP will employ strategies to affect behaviors that influence students' ethical behavior, including peer behavior, institutional norms, and differing cultural practices. It will be collaboratively designed, tested, and evaluated through a multi-disciplinary iterative development process by recognized experts in graduate science education, gaming, academic integrity, intellectual property rights, and educational digital media production. Six NSF Engineering Education awardees: Purdue University, Virginia Commonwealth University, University of Houston, Loyola Marymount, Oakland University, and Rowan University, along with the College of Sciences, University of Central Florida will assist in the testing and iterative refinement of the GAP intervention. The GAP project will be open source and freely available to these institutions and others to create the broadest possible national impact.

GAP's intellectual merit lies in its goal of training STEM graduate students in U.S. institutions to function effectively and ethically as authors within multi-national research teams. Given the substantial documentation of significant differences in cultural attitudes towards plagiarism (Carroll, 2005; Handa and Power, 2005; Leask, 2001; Ramburuth and McCormick, 2001), cutting-edge 21st Century science will require a common ground for preparing and publishing results in the scientific literature. GAP will provide this common ground.

The broader impacts of GAP are its adaptability and scalability across a wide spectrum of American higher education settings. The game's open source approach will allow each institution to integrate its own code of conduct, relevant policies, and branding while maintaining a common focus on what constitutes responsible conduct of research. Although the initial game will emphasize plagiarism, the gaming platform will accommodate additional game development on other ethical issues, e.g., fabrication of data. Because the project can be transmitted over the network, universities across the nation can request the GAP software and download an open source copy that can be updated to serve the needs of their particular institution.
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*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.
Gaming Against Plagiarism (GAP)
PROJECT DESCRIPTION

1.1 PROJECT VISION
The University of Florida (UF) and its partners propose to develop Gaming Against Plagiarism (GAP). This online, self-directed, interactive game will provide a role-adopting environment in which Science, Technology, Engineering, and Mathematics (STEM) graduate students will learn to recognize and avoid plagiarism. GAP will employ strategies intended to influence students’ ethical behavior, and it will explore the impact of peer behavior, institutional norms, and differing cultural practices on plagiarism. It will be collaboratively designed, tested, and evaluated through a multi-disciplinary iterative development process by recognized experts in graduate science education, gaming, academic integrity, intellectual property rights, and educational digital media production. Six NSF Engineering Education awardees: Purdue University, Virginia Commonwealth University, University of Houston, Loyola Marymount, Oakland University, and Rowan University, have been recruited along with the College of Sciences, University of Central Florida to assist in the testing and final refinement of the GAP intervention. This project has the institutional support of UF’s: President; Dean of the College of Engineering; Dean of the College of Liberal Arts and Sciences; Assistant Dean of Students and Director of Student Conduct and Conflict; Associate Dean for Graduate Education, College of Medicine; and Dean of the Graduate School represented by the I3 Program partnership. The GAP project will be open source and freely available to these institutions and others to create the broadest possible national impact.

GAP’s intellectual merit lies in its goal of training STEM graduate students in U.S. institutions to function effectively and ethically as authors within multi-national research teams. Given the substantial documentation of significant differences in cultural attitudes towards plagiarism (Carroll, 2004; Handa and Power, 2005; Leask, 2001; Ramburuth and McCormick, 2001), cutting-edge 21st Century science will require a common ground for preparing and publishing results in the scientific literature. GAP will provide this common ground.

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1.2 BACKGROUND AND RATIONALE
Plagiarism is the most critical and widespread misconduct issue facing beginning researchers (McCabe, 2005). In a study of 1,946 students from 31 U.S. academic institutions, 75% of Engineering students and 64% of Natural Science students admitted to some form of written cheating: turning in copied material as their own work, fabricating or falsifying a bibliography or turning in work done by someone else (McCabe, 1997). A more recent and broader survey of 63,700 undergraduate students and 9,250 graduate students, revealed that cheating on written work occurs more frequently than cheating on examinations, and that 62% of undergraduates and 59% of graduate students had engaged in “cut and paste” plagiarism from either print or electronic sources at least once in the last three years (McCabe, 2005). Perhaps most disturbing, approximately half of the students surveyed in a 2003 study, who admitted to some form of plagiarism felt their actions were “trivial or not cheating at all” (Rimer, 2003, based on McCabe findings). Bringing about meaningful change will require much more than PowerPoints
and tutorials (see section 1.3) – to change student attitudes, we must engage students in a non-threatening, non-judgemental environment in which they can personally experience and grapple with the multiple dimensions of plagiarism (Carroll, 2007).

The shifting landscape of plagiarism is further confounded by the globalization of science and engineering. This international dimension of research is most obviously reflected in the steady increase of papers co-authored by multi-national collaborators (Leydesdorff and Wagner, 2008). Thus, U.S. academic institutions need to train STEM graduate students as global scientists, at ease working with colleagues from other countries and disparate cultures, and sensitive to culturally varying standards of plagiarism, codes of ethical conduct, copyright, etc. Thompson & Williams (1995) address these differences: “For many ESL (English as a Second Language) students, learning not to cheat is more than a difficult task, it is a cultural hurdle. In some Asian cultures, students are taught to memorize and copy well-respected authors and leaders in their societies to show intelligence and good judgment in writing.” In other words, what is defined as plagiarism by American standards is not defined as such by many Asian or European standards, in which “…taking ideas and words from different books and writers to build an answer seems to be an accepted academic practice” (Pennycook, 1996). Standards can differ not only between but also within cultures. In India, for example, undergraduates are not expected to cite sources and it is only at the graduate level where such activity is expected, but not necessary (Handa and Power, 2005). The GAP team embraces the notion that plagiarism should be introduced to students in “…the true spirit of internationalization by incorporating recognition of … cultural contexts … instead of assuming homogeneity” (Handa and Power, 2005). In fact, ethics training that fails to incorporate cultural differences may be worse than useless; by implying a single standard, it may foster a narrow attitude, which could threaten the success of international collaborations.

Differences in occurrence and perception of plagiarism also occur within U.S. institutions and likely even within a given population of students. McCabe, Trevino, and Butterfield (2001) notes that “…women majoring in engineering, a major one might have considered male-dominated a few decades ago, talk about the need to compete by the ‘men’s rules’ to be successful in this major. Thus, generally higher levels of cheating were found among women in engineering compared to women in other majors, and women majoring in engineering reported cheating at rates comparable to men majoring in engineering.” (p.228) Such findings lend an urgent credibility to NSF’s implementation of Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act. COMPETES requires that “…each institution that applies for financial assistance from the Foundation for science and engineering research or education describe in its grant proposal a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project.” This January 2010 directive is enormously challenging to implement.

McCabe et al. (2001) states that “…cheating can be most effectively addressed at the institutional level…However, at an even broader level, academic institutions are advised to consider ways of creating an "ethical community" on their campuses – one that includes clear communication of rules and standards.” (p. 228) Education as a method to reduce plagiarism is further supported by the work of Duff, Rogers, and Harris (2006) and Belter and du Pré (2009), who report significantly lower levels of plagiarism after students (both native and non-native) were given awareness training. McCuen (2008) argues that “education about plagiarism can not wait until the student is starting to write the thesis or dissertation. The education should begin when the student begins his or her graduate program, if not before…and mentors should
have high writing standards from the beginning, not waiting until the student is writing the final
draft.” (p.155)

At UF, there is an acute awareness of the need to address plagiarism issues (see Letters of
Support). In 2000, a dissertation by UF student Kimberly Lanegran was plagiarized almost
verbatim by Marks Chabedi, who had been awarded a PhD at The New School (New York, NY)
and a professorship at the University of Witwatersrand (Johannesburg, South Africa). When the
issue came to light, he was fired from his position, his PhD was revoked, and at least one
publication from it was retracted (Langran, 2004; Zegeye, 2004). In 2006, UF science librarians
taught an Honors course to freshmen who knew they wanted to pursue graduate degrees in
science and engineering. Each student was mentored by a UF researcher and was required to
write a research proposal. In spite of high motivation, intellectual aptitude, and personal
mentoring, 25% of the students in the course engaged in plagiarism. This experience obviously
raised awareness amongst science librarians, faculty, and administrators, and it played a
decisive role in the science librarians’ initiation of the GAP project. An independent line of
evidence of UF’s plagiarism problem comes from the Director of Student Conduct and Conflict
Resolution, who reported a 55% increase in plagiarism cases between 2007 and 2009 (88
cases in 2007-08 vs. 163 in 2008-09). For the most current year (July 1, 2009 - February 15,
2010) there have been 125 reported cases of academic dishonesty, of which 64% (n=80)
involve plagiarism. It’s especially noteworthy that these data document (1) the majority of
academic dishonesty cases involve plagiarism, and (2) the frequency is increasing.

Currently UF has four discrete approaches to teaching ethical conduct of research:
1) Ethics is integrated into courses within various departments.
2) Workshops through the science library and the UF writing center teach how to avoid
plagiarism. (These efforts include an online tutorial for e-learning STEM classes.)
3) UF’s Division of Sponsored Research offers a class and a self-instructional PowerPoint
presentation on academic research integrity to satisfy the federal requirements of the
COMPETES Act.
4) UF’s faculty senate formed a task force on academic integrity.
Faculty and administrators recognize that none of these efforts is sufficient to provide a
campus-wide, sustainable approach to dealing with the growing issue of plagiarism.

UF’s official documents define and outline procedures for breaches of responsible conduct in
research (University of Florida 2007, 2008, and 2009). Academic dishonesty cases are officially
reported to the Dean of Students Office and handled by the Director of Student Conduct and
Conflict Resolution. When cases of plagiarism are found valid, students are often required to
attend workshops on ethics and/or plagiarism. The UF Writing Center’s workshop on plagiarism
includes an overview of the UF Honor Code and has 50 attendees each year. Students may
now opt to attend the library’s workshop on plagiarism to satisfy requirements and regain good
standing with the university.

Although UF faculty and administrators widely acknowledge the problem of plagiarism, it
remains in the shadows – an awkward topic, easily ignored and unintentionally encouraged
(assuming its practitioners generally receive credit for “their” work). The hard truth is that few
faculty are trained to deal with it and corrective measures are largely reactive rather than
proactive. Further, the vast number of graduate students in the STEM disciplines makes it
daunting to implement an effective, comprehensive program targeted on an issue as nuanced
as plagiarism.
Gaming Against Plagiarism offers a novel and sustainable approach towards raising awareness of plagiarism and lowering its incidence at UF and similar institutions. Because it will result in a certificate of completion, it will provide a level of institutional assurance that STEM students have had appropriate exposure to plagiarism and its potential impacts. GAP is designed to reach a multicultural audience through educational gaming.

1.2.1 EXISTING PLAGIARISM PREVENTION: ONLINE GAMES AND TUTORIALS

In February 2010, using the Center for Academic Integrity website (Center for Academic Integrity, 2007), open web searching, and ERIC database searches, five plagiarism games and 23 plagiarism tutorials were identified. Each was examined to determine relevance to graduate students and to STEM disciplines, including global research perspective, user engagement (i.e., how interactive), and availability of a certificate of completion.

Table 1 below is a comparison of the five games. All but one (U. Washington) are geared towards undergraduate students, none is specific to STEM disciplines, and none provides a multicultural (global) perspective. Although some are highly interactive, and most cover a relatively narrow range of topics.

Table 1. Existing games designed to raise awareness of plagiarism

<table>
<thead>
<tr>
<th>Assessed Plagiarism Games</th>
<th>Audience</th>
<th>STEM</th>
<th>Certificate</th>
<th>Global View</th>
<th>User Engagement</th>
<th>Topics covered</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation Game (University of Washington, no date)</td>
<td>Undergrad./Grad.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Low</td>
<td>Citation styles</td>
<td>15min</td>
</tr>
<tr>
<td>Goblin Threat (Lycoming College, no date)</td>
<td>Undergrad.</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Plagiarism &amp; Citation styles</td>
<td>15min</td>
</tr>
<tr>
<td>Information Literacy Game (University of North Carolina Greensboro, 2009)</td>
<td>Undergrad.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>High</td>
<td>Plagiarism; Searching, Citation Styles, Privacy,Sources</td>
<td>10min</td>
</tr>
<tr>
<td>Library Squares (Sacramento City College, 2009)</td>
<td>Undergrad.</td>
<td>No</td>
<td>No (but one for related tutorial)</td>
<td>No</td>
<td>Medium</td>
<td>Plagiarism &amp; Copyright</td>
<td>3min</td>
</tr>
<tr>
<td>Secrets of Biblioland (London Metropolitan University, no date)</td>
<td>Undergrad.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Medium</td>
<td>Library history, Citation styles, Plagiarism</td>
<td>40min</td>
</tr>
</tbody>
</table>

The 23 plagiarims tutorials were evaluated on the same seven criteria, with the following results:

- **Audience:** Most tutorials focused on undergraduate students; only 22% included material for graduate students. Two tutorials targeted international students (English Club, 1997-2001; Gardner, 2006).
- **STEM-specific issues:** Most tutorials did not mention STEM disciplines or citation styles (87%). Two tutorials allowed students to select scientist characters, but did not alter content to show science-specific citation styles (Central Piedmont Community College, 2006; Vaughan Memorial Library, 2004-2008). Only one tutorial detailed STEM issues such as falsification of data (University of Maryland University College, 2003).
- **Certification:** Almost half of the tutorials offered a formal certificate of completion and three schools required undergraduate students to complete the plagiarism tutorial prior to
registration (Duke University, 2009; Georgetown University, 2009-2010; University of Baltimore, 2006).

- **Global view on plagiarism:** None of the tutorials presented cultural or global views; however, 26% showed representations of multicultural students or allowed the user to select a character to represent him- or herself.

- **User engagement:** Compared with the games, none of the tutorials had a high level of user engagement in terms of number of actions available. Most of the tutorials (65%) were judged to have a low level of engagement, such as clicking on a link for more information.

- **Time to complete:** Working through tutorials ranged from 3 minutes (Monash University Library, 2010) to 45 minutes (Georgetown University, 2009-2010). Most tutorials took between 5-10 minutes to complete.

- **Topics covered:** In addition to covering plagiarism, tutorials discussed citation styles, academic integrity, cheating, and library resources.

These results highlight a national need for a more comprehensive, engaging, and multicultural approach of training students in the ethical conduct of research.

### 1.2.2 GAP: Why a Gaming Solution for Plagiarism Training?

Gaming is universal among college-aged students. A 2003 study of gaming technology on college campuses showed that 100% of participants had played a video or computer game, 70% played digital games “at least once in a while,” and 65% were “regular or occasional game players.” Gaming has become a part of daily life on college campus, “students integrate gaming into their day, taking time between classes to play a game, play a game while visiting with friends or instant messaging, or play games as a brief distraction from writing papers or doing other work” (Jones, 2003). More recent research on teenagers (future college students) shows that not only is game playing universal, but that game playing facilitates social discussions and “can incorporate many aspects of civic and political life” (Lenhart et al., 2008).

According to the final report from the Summit on Educational Games (Federation of American Scientists [FAS], 2006): “Educational games and simulations may be especially effective in developing higher-order skills — such as strategic thinking, interpretative analysis, problem solving, and decision-making. For example, in games, players are making decisions continually, in contrast to low levels of decision-making in traditional learning. Educational games and simulations may also be effective in developing complex aspects of expertise, not simply short-term memory of facts.” (p.43)

The GAP team embraces the report’s findings on the value of educational games to foster experiential learning techniques. We believe an interactive game incorporating role playing in scenarios from real life will be effective in students’ learning how to best recognize and avoid plagiarism. Similar real life scenarios were used by Lloyd and van de Poel (2008) to create a collaborative design game with engineering students “to give students ‘practical’ experience of ethical decision-making in the process of design. (p.446)…” The role-play of the game shows another important aspect of ethical concepts in general and responsibility in particular. This is the idea that ethics must in some way be ‘felt’. Learning about the concept of responsibility in theory is a lot different from feeling responsible for something happening” (p.445). Although Lloyd and van de Poel’s Delta Design game is not online, the game scenario of having multiple researchers collaborating on a research project provides an example of the type of complexity that will be incorporated in the GAP project.
2. PROJECT PLAN

2.1 GAP EDUCATIONAL GOALS
The goal of this project is to train STEM graduate students to engage in responsible conduct of research as members of multi-national, multi-cultural global research teams. While the GAP project team recognizes the three infractions of responsible conduct in research as “Making up data or results (fabrication), changing or misreporting data or results (falsification), and using the ideas or words of another person without giving appropriate credit (plagiarism)…” (National Academy of Sciences, 1995, p.16), it has chosen to focus on plagiarism as being the most critical and widespread misconduct issue facing beginning researchers (McCabe, 1997, 2005).

GAP project objectives are:
1) Develop a culturally-sensitive tool reflective of the future ethical considerations faced by U.S. global researchers publishing in a multi-cultural research environment;
2) Incorporate game design strengths identified at the NSF co-sponsored National Summit on Educational Games: higher order skills, practical skills, practice for high performance situations, and developing expertise;
3) Create a transferable training environment that aids U.S. institutions in complying with Sec. 7009 of the America COMPETES Act;
4) Assure scalability and robustness of design to permit future content enhancements to cover additional aspects of responsible research conduct, such as the falsification and fabrication of data.

Specific Learning Objectives for GAP
STEM graduate students successfully completing the game will be able to:
1. Identify major types of contemporary plagiarism, including unique aspects of science/technology publishing (e.g., charts, tables, and diagrams).
2. List the basic rules to avoid plagiarism in research activities.
3. Demonstrate ability to apply the rules in increasingly complex scenarios.
4. Explain copyright, fair use and author’s rights (i.e., intellectual property rights).
5. Explain the potential consequences of plagiarism academically and professionally.
6. Recognize and acknowledge differences in cultural approaches to plagiarism.

2.2 GAMING PEDAGOGY METHODS
Teaching methods grounded in constructivist approaches to learning will be emphasized in the instructional design of the game. Gaming employs active learning on behalf of students. Players will have the flexibility to learn at their own pace and make decisions within the context of the virtual scenarios presented within the game.

The Federation of American Scientists ("Why Games?" website 2007) indicates well designed games offer best practice pedagogical features. The features that will be incorporated in the GAP gameplay design include:

- **Experiential Learning** – giving students real-world decision making practice;
- **Problem-based learning** – skills sets are developed through hierarchical problem solving scenarios;
- **Immediate feedback** – increases persistence in problem solving;
- **Learner-centered learning** – student is the focus of and controls the learning process;
- **Problem Solving in Complex Systems** – successful problem solving is dependent on understanding core concepts of the system, e.g., in GAP, solving complex plagiarism scenarios will depend on understanding basic plagiarism issues;
Social Relationships – social skills development is intrinsic to success, e.g., in GAP, understanding cultural perceptions of plagiarism will be integrated into the scenario; and, Prioritization among Competing Objectives – alternative choices lead to shifting game outcomes and game scenarios.

2.3 GAME DEVELOPMENT STRATEGIES
Gaming experts, pedagogical experts, science researchers, and librarians will collaborate to develop GAP using a rapid prototyping technique. This iterative approach consists of three stages:

1) Game Development Team develops a prototype informed by content/gaming pedagogy consultants.
2) Librarians conduct usability testing with student players.
3) Pedagogy consultants and librarians analyze feedback, which is used in future prototype design.

2.3.1 GAME PROTOTYPING

GAME CONTENT
Students’ understanding of plagiarism will be built on progressively more complex levels of understanding and decision making. The first level will involve identification of and techniques to avoid the most common forms of plagiarism: intentional vs. unintentional plagiarism, patchwriting/stealing, misquoting or not quoting, insufficient paraphrasing/summarizing, and duplicating publications. Level two will address the various codes of conduct and consequences of plagiarism, and will incorporate cultural differences on plagiarism. These two levels will allow players to assimilate the basic issues. Level three will move beyond identification and understanding of consequences to focus on complex ethical situations such as discovering a published paper by the player’s international research team contains plagiarized text. Successful completion of the game will result in a certification award. Students unable to master the material in the first attempt may continue through the game until they exhibit sufficient achievement in demonstrating their understanding of key plagiarism concepts. Dr. Donald McCabe from Rutgers Business School, an expert on college education, ethical development, and student cheating in college, will act as an outside source of reliability of initial game content, evaluating the game to ensure current standards and practices in the field are met.

GAMEPLAY
The GAP game will be built in the open source Java environment jMonkey. The jMonkey Engine (jME) provides a 3D graphical environment that is both robust and evolving, and allows the game to be played on any contemporary computing platform (i.e. Windows, Mac, Linux, etc.). While under development, the game will reside on a secure dedicated server at UF’s Digital Worlds Institute.

During the development phase, the GAP team will create scenarios based on at least some real-life plagiarism samples experienced by UF faculty and librarians. One base scenario might be that the player is a scientist, working in ‘green technology.’ His/her goal is to work with other scientists to craft a proposal to the National Science Foundation. Along the way, the player must learn about plagiarism, collect sections of the proposal written by non-U.S. trained researchers, and then make important decisions about what can and can’t be included. Using a
3D environment; players will use arrow keys to navigate a university setting. They will use multiple choice inputs to answer questions.

The overarching “meta-game” will be a user’s success in submitting a plagiarism free proposal. “Mini-games” will be embedded in the play, allowing players to win badges for completing discrete challenges. For instance, in the 3D environment, there will be wall posters highlighting ethics, science, green technology information, etc. Students who read eight of 10 posters will be given a knowledge badge to add to their profile. Users who complete the game with the greatest number of badges, on top of their achievement certification score, will be the acknowledged leaders in the online GAP universe.

Building “meta-games” with embedded “mini-games” is a proven technique used in successful commercial gaming properties. Adopting this technique into GAP will keep students engaged (returning to the game to boost their personal profile), as they increase their understanding of plagiarism. Students will encounter other important contemporary issues and learn research-associated skills as they play GAP: 1) diversity and cultural research differences – students will choose their own avatar (the representation of themselves in the game) by race and gender. The GAP-embedded characters they encounter will be of diverse race, gender, and career paths, and will have differing codes of ethics related to writing; 2) green technologies - increasingly of interest across STEM disciplines and to NSF – may serve as a content focus; and 3) proposal writing skills – while critical to research endeavors, many students don’t receive mentoring in proposal writing during their graduate study.

Dr. Richard Ferdig, RCET Research Professor and Professor of Instructional Technology at Kent State University, will act as an outside source of reliability and evaluation for initial game design, helping ensure that research-based methods and mechanics of game design are instilled in the design and the game builds.

2.3.2 Usability Testing

The purpose of conducting usability tests is to make the final game as intuitive as possible. We want to ensure that the human-computer interface does not create barriers to participation from a wide variety of users. As Rubin and Chisnell explain, “what makes something usable is the absence of frustration in using it…when a product or service is truly usable, the user can do what he or she wants to do the way he or she expects to be able to do it, without hindrance, hesitation, or questions” (Rubin & Chisnell, 2008). Because “usability testing is most powerful and most effective when implemented as part of an iterative product development process” (Rubin & Chisnell, 2008), we will employ an established rapid prototyping cycle: (1) design a gaming prototype, (2) test prototype with users, (3) redesign the game, based on user-feedback and interactions.

There will be three iterations of game design and development to allow developers to test the product with users and experts prior to beta implementation and testing. In addition, 5-10 students from the I³ project (see section 4.3 and Letters of Commitment) will be carefully monitored as they first encounter and play different versions of the game. This number is suggested by Rubin’s and Chisnell’s (2008) research which “indicates that testing four to five participants … will expose the vast majority of usability problems.” For instance, during the first iteration, students will be asked to log-in and play a prototype level. Data from the gameplay will be recorded using Morae software and analyzed to examine difficulties. After the experience, students will be asked qualitative questions about their experience (designed in conjunction with both external consultants and the developers). This feedback will be given to the developers and experts Ferdig and McCabe to inform the next prototype.
2.3.3. FEEDBACK ANALYSIS
Margeaux Johnson will design the user testing protocols for the iterative game development and coordinate user testing of graduate students utilizing the Emerging Technologies User Experience Lab in the UF Libraries. After each iteration, McCabe and Ferdig will be given access to the testing results and to the gameplay data to provide feedback on playability and content validity.

2.4 RECRUITMENT
Because the GAP project is focused on development of software, our recruitment of graduate student participants serves a different purpose than in, for example, IGERT and GK-12 training grants. In particular, graduate students in GAP will be involved in testing the game. Three distinct groups of graduate students at UF will participate in beta testing: (1) members of the I³ Graduate Student Advisory Council (GSAC) will help during game development, (2) graduate students in an Engineering course and (3) NSF-funded graduate students.

(1) Innovative through Institutional Integration (I³) Program, Graduate Students Advisory Council (GSAC)
NSF recently funded an Innovative through Institutional Integration (I³) Program at UF. Its overall goal is to bring together and institutionalize all graduate training programs across campus. Ethics training is a particular focus of the I³ Program team. Unique among graduate training programs, I³ activities are generally conceived and implemented by graduate students, not faculty or administrators. Spearheading I³ activities is the Graduate Student Advisory Council (GSAC), a highly diverse group of students: approximately half (7 of 15) are Black, Hispanic, or have a disability; two are Black females; and two are females in a traditionally male-dominated discipline (engineering).

Key to this proposal, GSAC members are keenly interested in assisting with the development and usability testing of GAP and have agreed to work with librarians in testing and providing feedback on the iterative prototypes of the game (see Letter of Commitment). In light of the Council’s diversity and because it is housed in UF’s International Center, I³ can provide expertise in cultural differences associated with plagiarism and ensure broad validity and usability of GAP at its early stages of development.

A final and significant advantage of partnering with I³ is its institutional support -- both the President of UF (Bernie Machen) and the Dean of the Graduate School (Hank Frierson) are PIs on I³ and are deeply committed to improving graduate education on campus. With GSAC buy-in and strong university administrative support (see Supporting Letters), we are confident that GAP will become institutionalized, i.e., used as a component of required training in ethical conduct of research.

(2) UF College of Engineering graduate students
Engineering students at UF are especially diverse in terms of nationality. In 2009, over half of UF’s 2,728 graduate engineering students were non-US citizens, representing 69 countries. They, too, will be valuable for providing feedback on global research and cultural issues addressed in GAP. The beta version will be tested and critiqued by a group of graduate students selected by the College.

(3) NSF funded graduate students
Finally, we will use I³’s database of graduate students currently supported by NSF to recruit an additional 25-30 STEM students to take and provide comments on the beta version of GAP. Because these students are supported by NSF, we are confident they will be more diverse than the average population of STEM students at UF.
2.5 Multi-institutional Testing
Both UF’s I³ Program (see above) and the UF College of Engineering have diverse student populations that represent a variety of ethnicities, nationalities, and backgrounds. Testing with these diverse student populations will help ensure that the final GAP product will be accessible to a wide audience.

In month 16 of the project (Winter 2012), UF and GAP’s partnering institutions (see section 7. Partnering Organizations) will receive the beta version of the game for review by their STEM graduate students. Twenty-five to 30 graduate students at each institution external to UF will play the game and provide feedback using pre and post-tests (see section 3. Evaluation Plan). These institutions range greatly in size, geographic location, and type (private vs. public). Furthermore, our collaborators at the institutions vary greatly in their subdisciplines (see Section 7 and Letters of Commitment). Results of the online evaluation will be synthesized and will inform future revisions of the final product.

2.6 Evaluation and Assessment
Evaluation and assessment occur in the development of the game as described in 2.3 above. Evaluation of the game’s effectiveness in meeting its specific learning objectives is found in 3. Evaluation Plan.

3. Evaluation Plan

There are two complementary phases required to assess and evaluate the production of the GAP game: (1) initial design, game testing and redesign (Section 2.3 above), and (2) completed game implementation and evaluation, which will be discussed here. These phases ensure participatory input into the design and implementation of the game from both experts in the field and future users of the game. Each evaluative process is discussed at the appropriate section within this document.

Once the beta version of the game is ready for effectiveness testing, 200 students will be recruited from UF and seven other institutions: Purdue University, Virginia Commonwealth University, University of Houston, Loyola Marymount (Los Angeles), Oakland University (Rochester, MI), Rowan University (Glasboro, NJ), and the University of Central Florida (see section 2.5 Recruitment and Commitment Letters). Students will be given access to the game and will sign an informed consent document prior to play. They will also be given a pretest. The pre-test will measure both their perceptions and knowledge of ethics in research. A similar post-test will be given at the conclusion of the game or when the course is over (whichever comes first).

In close collaboration with Dr. Ferdig, the GAP team will analyze pre- and post-test data, in combination with gameplay data (e.g., how long it took to complete the game, how many attempts it took) to determine effectiveness of the game in producing changes in knowledge and attitudes towards plagiarism.

4. List of Key Personnel

4.1 UF Science & Engineering Librarians
GAP team librarians will identify legal and ethical content for the game based on data derived from the literature review summarized above and in combination with data provided by faculty and administrators who have managed recent cases of plagiarism at UF. Librarians have expertise in usability testing and access to a lab that supports this activity. GAP will be tested
with various groups of graduate students, representing a broad cross-section of STEM disciplines, genders, ages, and ethnicities. Making the tool useful for students with varying disabilities will be part of the project design and testing, as will sensitivity to cultural differences. The GAP librarian team members are:

**Michelle Foss** received her Master of Library Science (MLS) degree from Kent State University in 1995 and has worked in both corporate and academic environments. She joined the UF library faculty in 2004 and is currently responsible for copyright and intellectual property rights compliance. Foss is a recognized expert in intellectual property rights as they relate to academic library services and has spoken on these issues at international and national conferences. She regularly teaches workshops for science graduate students and faculty on authors’ rights, copyright, and right infringements including plagiarism. Her current research interests include the cultural bases of ethical decisions made by students and the broader issues of rights embodied in the Open Access movement. She will serve as GAP Project PI.

**Amy Buhler** received her MLS from the University of North Carolina at Chapel Hill. She was part of the original team that designed the Guide to Plagiarism tutorial for science and technology students, which has been adopted campus-wide by various programs and departments. Buhler has also been an instructor of the honors course *Research for Science Students*, which covers STEM research ethics in depth. Likewise, she brings extensive experience in teaching *Writing for Engineers* classes, which include units on plagiarism. She will serve as GAP Project Co-PI.

**Margeaux Johnson** is a recent MLS graduate from the University of Maryland, College Park, and is pursuing a second graduate degree in Educational Technology at UF. Currently, she coordinates instruction for science and engineering students at the Marston Science Library. She is a primary instructor of the for-credit honors course *Research for Science Students* which covers STEM research ethics in depth. Johnson also serves on the Libraries’ Emerging Technologies group where she is involved with user testing of digital collections, library websites, and library mobile apps. She will serve as GAP Project Co-PI.

### 4.2 UF Digital Worlds Institute (DWI)

DWI will provide an experienced team of programmers, artists, interface designers, interactive digital media producers, and graduate research assistants who will create the GAP software and graphics. By working collaboratively with the GAP development team, the DW team will translate the most relevant concepts and scenarios into a scalable interactive media environment.

**James Oliverio** is Professor of Digital Arts and Sciences and has served as the Director of the UF Digital Worlds Institute since 2001. His previous post included service as Georgia Tech’s Artist in Residence and Director of the Audio Lab in the College of Computing’s Graphics, Visualization and Usability (GVU) Center. In addition to numerous creative and research awards, he holds five Emmy Awards from the Atlanta Chapter of the National Academy of Television Arts and Sciences (NATAS) and twenty consecutive annual awards from the American Society of Composers, Authors and Publishers (ASCAP). He has produced numerous arts and entertainment projects, ranging from work for Live from Lincoln Center to his digital media opera “StarChild”, produced from the Georgia Tech Olympic Village preceding the 1996 Olympic Games in Atlanta. His current research and development activities include the NSF-funded “Use of Haptics in a Virtual Reality Environment for Learning of Nanotechnology.” He is a vocal exponent of integrating the digital Arts into early and secondary learning in the STEM areas through the STEAM Learning Network. Oliverio will serve as GAP Project Co-PI.
4.3 INNOVATION THROUGH INSTITUTIONAL INTEGRATION (I³) PROGRAM
As described above (Section 2.4) the goal of I³ is to bring together and institutionalize all graduate training programs across campus. The graduate students who spearhead I³ activities are especially eager to participate in GAP development – in 2009, an independently administered survey of NSF-supported graduate students at UF revealed that only 36% had ever received training in ethics and that 88% requested such training. Thus, the Graduate Student Advisory Council (GSAC) of I³ embraces the GAP project (see Letter of Commitment).

Douglas Levey, Ph.D. is Professor of Biology at UF. He is a Co-PI of I³ and PI of an ongoing NSF GK-12 Program (SPICE). In addition to being a liaison between GAP and I³, he will bring to GAP the perspective of a seasoned educator, researcher and mentor of graduate students. His awards for teaching, mentoring, and research include UF’s highest faculty honor, Teacher-Scholar of the Year. Most of his research and students are based abroad, where they frequently encounter disparate cultural norms of ethical conduct of research. Levey has published on broader impacts in peer-reviewed journals and has been active in creating online media that describe recent scientific discoveries in easily accessible and understood formats (for an example, click here). He will serve as a GAP Co-PI.

4.4 EXTERNAL EVALUATION CONSULTANTS
Richard Ferdig, Ph.D. is a Professor of Instructional Technology at Kent State University’s Research Center for Educational Technology. He holds a Ph.D. in Educational Psychology from Michigan State University, with an emphasis on technology and cognition. Prior to joining the Kent State Faculty, he was on faculty at both Michigan State University and UF. Ferdig recently published a three volume Handbook of Research on Effective Electronic Gaming in Education. He currently serves as the Editor of the International Journal of Gaming and Computer-Mediated Simulations and the Associate Editor of Journal of Technology and Teacher Education. He brings expertise in the design, development, implementation and evaluation of games and simulations. His role on the project will be to support the design and development of the game, the iterative testing during game development, and the evaluation of the game in use.

Donald McCabe, Ph.D. received his undergraduate degree in Chemistry from Princeton and his Ph.D. in Management from New York University. A faculty member at Rutgers University, McCabe’s teaching specialties include Business Ethics & White Color Crime. He is an internationally recognized expert in the field of ethical decision making with an emphasis on the relationship between college education and ethical development and student cheating in college. He has published extensively in this area and has received best paper awards from The Canadian Journal of Higher Education for his September 2006 article “Academic Misconduct within Higher Education in Canada,” coauthored with Julia Christensen-Hughes, University of Guelph, Canada, and from The Academy of Management Learning and Education in 2007 for “Academic dishonesty in graduate business programs: Prevalence, causes and proposed action,” coauthored with Linda Trevino, Penn State and Kenneth Butterfield, Washington State. He will review content as developed and assure that multicultural ethical differences are integrated into the game design.

5. PROJECT MANAGEMENT PLAN
The GAP project team’s planned phases and key sequenced activities are mapped out below, with accompanying descriptions of activities and responsible team members in each phase.
Chart 1. The overall project management plan

Table 2: Gap Project Plan by Month

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<thead>
<tr>
<th>MONTH (starting September, 2010)</th>
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**Phase 1. Content Development (Pre-production visualization)**
- **Time Frame:** 6 months (September 2010-February 2011)
- **Key personnel:** Team Leads = Amy Buhler & Michelle Foss; Partners = Rick Ferdig (pedagogy), Donald McCabe (academic integrity), Doug Levey (sample validation), James Oliverio (game pre-production), Librarians (game scenarios)
- **Key Activities:** Collect samples from STEM disciplines, Sample validation against NSF Codes of Conduct, Research global scientific ethics approaches and issues, Develop narratives appropriate for game play

**Phase 2. Game Development**
- **Time Frame:** 12 months, December 2010 - December 2011
- **Key personnel:** Team Lead = James Oliverio (Overall game interaction design and production); Partners = Rick Ferdig, graduate students in the Digital Worlds Institute
• **Key Activities:** Develop prototypes of animated and progressively more complex game modules, through iterative design processes; Include pedagogical aspects of the game design (Rick Ferdig)

**Phase 3. User Testing & feedback for development**

• **Time Frame:** 8 months, April 2011 - December 2011 (Summer & Fall 2011)
• **Key personnel:** Team Lead = Margeaux Johnson; Partners= Librarians, Rick Ferdig & James Oliverio, Doug Levey
• **Key Activities:** Develop testing protocols, Recruit STEM graduate students for tests, Analyze testing data, Use feedback to inform further prototypes for beta version

**Phase 4. Dissemination & Beta testing**

• **Time frame:** 5 months, December 2011 - April 2012 (Spring 2012)
• **Key personnel:** Team Lead = Doug Levey; Partner organizations; Library coordinator = Michelle Foss; Librarians
• **Key Activities:** Distribute beta version with pre- and post-tests to 19 students, UF College of Engineering students, and other UF graduate programs; Distribute beta version with pre- and post-tests to partnering universities; Conduct beta test with 200 UF students and various partner organizations; Collect feedback from the pre- and post tests for evaluation

**Phase 5. Evaluation and final game**

• **Time frame:** 5 months, April 2012 - August 2010 (Summer 2012)
• **Key personnel:** Team Lead = Rick Ferdig; Partners = Donald McCabe, James Oliverio, Doug Levey, Amy Buhler, Michelle Foss, Margeaux Johnson
• **Goal:** Evaluate and develop final game
• **Key Activities:** Evaluate the game’s success as a learning tool, Evaluate overall project, Compile best practices to inform development of future modules, Develop final game

**6. DISSEMINATION PLAN**

Locally, the Libraries’ Public Information Officer will publicize GAP to the UF community, and disseminate information regarding its availability, using these strategies:

- Advertize on the libraries’ home page and training and instruction pages for faculty
- Send news release to media outlets: Gainesville Sun, The Independent Florida Alligator, WUFT-TV, WUFT-FM, Inside UF, Gator Times
- Write an article for the libraries’ newsletter distributed to UF faculty
- Send news release to the UF News Bureau for wider distribution and to publicize outside the UF community

### 7. PARTNERING ORGANIZATIONS

**GAP National Partners**

<table>
<thead>
<tr>
<th>Lead Collaborator</th>
<th>Institution</th>
<th>Subject Area</th>
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<tbody>
<tr>
<td>Hong Z. Tan</td>
<td>Purdue University</td>
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<tr>
<td>Dianne Pawluk</td>
<td>Virginia Commonwealth University</td>
<td>BioMedical (BME)</td>
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<td>Xiaojing Yuan</td>
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<td>Eng. Technology (ET)</td>
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<td>Stephanie August</td>
<td>Loyola Marymount (Los Angeles)</td>
<td>Elect/Computing Sci (ECS)</td>
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<tr>
<td>Fatmi Mili</td>
<td>Oakland University (Rochester, MI)</td>
<td>CompSci&amp;Eng (CSE)</td>
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<tr>
<td>Ying Tang</td>
<td>Rowan University (Glasboro, NJ)</td>
<td>Elect/Computing (ECE)</td>
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<tr>
<td>Michael D. Johnson</td>
<td>University of Central Florida</td>
<td>College of Sciences</td>
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### 8. SUSTAINABILITY

Once GAP has been thoroughly tested, we anticipate its adoption into training programs in the responsible conduct of research that are already available at UF and required of NSF-supported students and postdoctoral researchers. The one most central to the university community is provided by the Division of Sponsored Research and consists of ten PowerPoint slides. We will work with the Division of Sponsored Research, the Dean of the Graduate School, the Provost, and the I3 Program to facilitate use of GAP as broadly as possible across campus. Chris Loschiavo, UF’s Assistant Dean of Students and Director of Student Conduct and Conflict Resolution, has indicated that a successful game will have multiple applications on the UF campus: “We will require most students found responsible of violating our plagiarism policy to complete the game unless there are mitigating circumstances. Additionally, we will use the game as a training tool for our student members that hear cases involving allegations of plagiarism. We may also make this game a requirement for all new students that will need to be completed before they are able to register for classes their second semester.” (see Letters of Support)

Upon successful completion of the GAP intervention, funding will be pursued to create additional components for ethics modules on data fabrication and falsification. The GAP development team expects GAP’s effectiveness will lead to wide-spread adoption outside of UF and to suggestions for additional training modules, all driven by the common goal of training ethically responsible global researchers and engineers.
References Cited


BIOGRAPHICAL SKETCH
Michelle M. Foss
Marston Science Library
University of Florida
Gainesville, FL 32611-7011

Professional Preparation
The Ohio State University   French/International Relations   BA 1991
Kent State University   French (Technical) Translation   MA 1993
Kent State University   Library Science   MLS 1995

Appointments
2009-present  Science & Technology Librarian, Marston Science Library, University of Florida
2005-2008  Interlibrary Loan & Course Reserves Librarian, George A. Smathers Libraries, University of Florida
2004-2005  Access Services Librarian, Health Science Center Library, University of Florida
2001-2004  Reference Librarian, University of Central Florida

Publications
Most Relevant to Proposed Research

Other Significant Publications
Synergistic Activities
In 2010—selected by the American Libraries Association’s Reference and User Services Association to participate in the National Information Standards Organization (NISO) Physical Delivery Working Group. This group meets twice per month and is charged to create and write a new set of best practices/standards for the shipping of materials nationally and internationally.


As Chair (2008) of State Universities Libraries (SUL) Public Services Planning Committee Interlibrary Subcommittee, I was the co-contributor and co-author of the statewide guideline “SUL Resource Sharing Guidelines.”

Contributor, editorial assistant (2009) to the “Hinari Access to Research Series: how to write a scientific paper—a general guide; Intellectual Property: Copyright & Plagiarism; Strategies for Effective Writing” with Lenny Rhine, Ph.D, is a consultant for the World Health Organization (WHO) and presented this workshop in Hinari, Africa.

Served as speaker and panelist on the topics of copyright and plagiarism in the sciences and academia: 2009 Open Access Week (University of Florida); 2009 Department of Forest Resources & Conservation (University of Florida); 2009 Department of Entomology and Nematology (University of Florida); 2009 Department of Entomology and Nematology Graduate Seminar Series (University of Florida); 2008 Copyright Clearance Center Panel Discussion on the uses of copyright, fair use and the TEACH in academia, at the Atlas Systems at the Annual ILLiad International Conference; 2007 Hot Topics Discussion Group at the American Libraries Association Annual Meeting.

Collaborators & Other Affiliations
Bartlett, Jennifer (University of Kentucky); Berke, Merilyn (University of South Florida); Buhler, Amy (University of Florida); Chen, Chaichin (State of Rhode Island, Office of Library & Information Services); Carpenter, Todd (National Information Standards Organization, NISO); Davis, Valrie (University of Florida); Dawes, Trevor (Princeton University); Driscoll, Lori (Gulf Coast Community College); Drozd, Kathy (MINITEX Library Information Network); Fontaine, John de la (Occidental College); Gibson, Tess (University of Arkansas); Henk, Mandy (DePauw University); Hodgson, Cynthia (National Information Standards Organization, NISO); Horton, Valerie (Colorado Library Consortium); Kuehn, Jennifer (Ohio State University); Mott, Angela (University of Florida); Nyquist, Corrine (State University of New York); Pronevitz, Greg (Northeast Massachusetts Regional Library System); Rhine, Lenny (University of Florida); Sachs-Silveira, Diana (Tampa Bay Library Consortium); Shrauger, Kristine (University of Central Florida); Slyhoff, Merle (University of Pennsylvania); Smith, Velma (Florida State University); Van Dyke, Teresa (Florida Atlantic University); Waltner, Rob (University of North Florida); Wetzel, Karen (National Information Standards Organization NISO); Wilke, Mary (Center for Research Libraries); Zuretti, Drew (Copyright Clearance Center).
BIOGRAPHICAL SKETCH
Amy G. Buhler
Marston Science Library
University of Florida Libraries
University of Florida
Gainesville, FL 32611-7011

Professional Preparation
Undergraduate
1999 B.A., University of Florida, Gainesville, FL
Graduate
2001 M.S., University of North Carolina, Chapel Hill, NC

Appointments
2007- Engineering Librarian, Marston Science Library, University of Florida
2001-2007 Medical Librarian, Health Science Center Libraries, University of Florida

Publications

Synergistic Activities
Responding to the growing campus-wide concern about plagiarism, I was the lead developer for the online plagiarism tutorial, “Guide to Plagiarism” [Accessed online, 2/23/2010, http://www.uflib.ufl.edu/msl/07b/students.html]. This guide was developed collaboratively with faculty and other librarians who had experienced plagiarism issues in their courses. Learning assessment modules corresponding to the tutorial content were created for implementation in e-courses being developed by UF faculty. Face-to-face workshops have also been implemented to involve faculty-student dialogs on plagiarism.
In addition, I am one of the University of Florida outreach team members on the National Institutes of Health VIVO grant (abstract below):

VIVO is a multi-institutional database that facilitates communication and collaboration across interdisciplinary and institutional boundaries not only for scientists, but also for students, administrators, prospective faculty and students, donors, funding agencies, and the public. Built upon Cornell University's open-source VIVO platform, this national portal (www.vivoweb.org) will interface with local implementations of VIVO with information which is primarily ingested automatically from institutional data resources. Using semantic web technology, VIVO contains researcher profiles, grants, publications, courses, and research facilities. Under the current model, support for VIVO and data curation and management is coordinated by librarians and subject specialists at each research institution. Currently Cornell University and the University of Florida have implemented VIVO and at least five other institutions will join the network during 2010. In 2011, a new release of VIVO will include national networking features, citation metrics, and the inclusion of MeSH terminology. This collaboration is funded by the National Institutes of Health, U24 RR029822.

Collaborators and Other Affiliations
Albert, Paul (Weill Cornell Medical College); Bennett, Denise (University of Florida); Botero, Cecilia (University of Florida); Bushhousen, Ellie (University of Florida); Cataldo, Tara (University of Florida); Conlon, Mike (University of Florida); Davis, Valrie (University of Florida); Devare, Medha (Cornell University); Dunn, John (Indiana University); Edwards, Mary (University of Florida); Ferree, Nita (University of Florida); Foss, Michelle (University of Florida); Hack, George (University of Florida); Holmes, Kristie (Washington University – St. Louis); Jesano, Rae (University of Florida); Johnson, Margeaux (University of Florida); Kiker, Greg (University of Florida); King, Paula (Scripps Research Institute); Markes, Paula (University of Florida); Overman, Allen (University of Florida); Russell Gonzalez, Sara (University of Florida); Schaefer, Nancy (University of Florida); Tennent, Michele (University of Florida); Trimarchi, Michaeleen (Scripps Research Institute);
BIOGRAPHICAL SKETCH
Margeaux C. Johnson
Marston Science Library
University of Florida
Gainesville, FL 32611-7011

Professional Preparation
University of Florida Classics BA 2002
University of Maryland Library Science MLS 2008

Appointments
2009-present Science & Technology Librarian, Marston Science Library, University of Florida

Publications


Synergistic Activities

National Network for Scientists (VIVO), Outreach Team Member
VIVO (www.vivoweb.org) is a multi-institutional database that facilitates communication and collaboration across interdisciplinary and institutional boundaries for scientists. Using semantic web technology, VIVO contains researcher profiles, grants, publications, courses, and research facilities. Cornell University and the University of Florida have implemented VIVO and at least five other institutions will join the network during 2010. In 2011, a new release of VIVO will include national networking features, citation metrics, and the inclusion of MeSH terminology. This collaboration is funded by the National Institutes of Health, U24 RR029822.

Open Access Week, Coordinator
Served as co-chair for University of Florida’s campus-wide Open Access Week (www.uflib.ufl.edu/oa). Open Access Week is an international event to raise awareness
about public access to publically funded scientific research. In collaboration with PLoS (Public Library of Science), SPARC (Scholarly Publication and Academic Research Coalition), and universities around the world UF participated by coordinating sessions for faculty and researchers.

**Research Skills for Science Students, Co-Instructor**

Developed the honors *Research Skills for Science Students* course (IDH3931) at the University of Florida in conjunction with Dr. Sara Russell Gonzalez. This course prepares college freshmen to excel as science researchers by teaching supplementary skills (information literacy, scientific communication, and technological skills) that are sometimes missing from traditional academic coursework. Topics include: searching scientific literature databases, evaluating information, scientific writing skills, finding undergraduate research opportunities, and recognizing the importance of ethical research.

**Collaborators**

Buhler, A. (University of Florida); Conlon, Mike (University of Florida); Davis, Valrie (University of Florida); Gonzalez, Sara Russell (University of Florida); Haas, Stephanie (University of Florida); Hansen, Derek (University of Maryland College Park); Norton, Elizabeth (National Library of Medicine); McDonough, Anne (University of Maryland College Park); Roderer, Nancy (Johns Hopkins University); Tennent, Michele (University of Florida)
BIOGRAPHICAL SKETCH
DOUGLAS J. LEVEY
University of Florida
Gainesville, FL 32611-8525

Professional Preparation
Undergraduate
1979 B.A., Earlham College, Richmond, IN
Graduate
1986 Ph.D., University of Wisconsin, Madison, WI
1982 M.S., University of Wisconsin, Madison, WI
Postdoctoral
1987-88 Postdoctoral Fellow. University of Florida, Gainesville, FL

Appointments
1997- Professor, University of Florida
1993-1997 Associate Professor, University of Florida
1988-1993 Assistant Professor, University of Florida

Publications

Synergistic Activities
- A strong commitment to recruiting and mentoring scientists from under-represented groups.
  In my lab, these have included: Alex Jahn, Ellen Andresen, Maria Barreto, Candace Hardwick, Connie Clark, Marcelino Fuentes, Alejandro Grajal, Rochelle Johnston, Silvia Lomáscolo, Carlos Manchego, Marvin Morales, Julian Resasco, Christina Romagosa, Stephanie Romañaich, Lenny Santisteban, Carla Restrepo, Lynn Svhra, Teri Tamboa,
Laura Vargas, Sophia Wahaj & Pedro Rey Zamora. All NSF REU participants in my lab have been women and three have been minorities. Currently, I am mentoring 3 Hispanic Americans (2 PhDs, 1 BS), 1 African American (BS), and 3 international students (MS & PhD). In large part, these activities have led to three mentoring awards (2 from University of Florida and 1 from the US Forest Service).

- Lead PI of SPICE, an NSF GK-12 program that trains and places UF graduate students into under-privileged middle schools, where they teach science 2 days per week (www.spice.centers.ufl.edu). The goal is to foster children’s interest in pursuing STEM disciplines and to help change the culture of graduate education by emphasizing the role of broader impacts in graduate training. My participation in these types of activities contributed to being named "2000-2001 Teacher-Scholar of the Year," the University of Florida's highest faculty honor.

- Co-organizer of two International Symposia/Workshops, one on frugivory (Brazil, 2000) and one on bird migration (Chile, 2003). Lead PI on NSF INT-0002432 and INT-0313419, which provided travel funds for >35 scientists, representing a wide range of ages and ethnicities.

- Co-organizer of symposium on NSF GK-12 programs at the 2006 annual meeting of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). I am an active member of SACNAS.

- Introduced Evolutionary Medicine into the curriculum at Univ. of Florida and Brown Univ.

- Developed some of the first web-based courses at University of Florida, which led to two University of Florida teaching awards (1993, 1996).

Collaborators and Other Affiliations

Within last 48 months (not including those listed in the following two sections)

John Blake (US Forest Service), B. Bolker (U. Florida), T. Carlo (U. Washington), Ellen Damschen (Washington U.), Betty Dunckel (U. Florida), Tomas Carlo (U. Washington), Tom Crisman (U. Florida), Brent Danielson (Iowa State Univ.), Mauro Galetti (University of Sao Paulo, Brazil), Katheryn Greenberg (US Forest Service), L. Guillette (U. Florida), L. Jones (U. Florida), Nick Haddad (North Carolina State Univ.), H. Howe (U. IL-Chicago) Ido Izhaki (Haifa University, Israel), Mary Jo Korolly (U. Florida), John Orrock (Iowa State U.), R. Quintana (Alachua Co. Public Schools), Wesley Silva (U. Campinas, Brazil), Kim Smith (U. Arkansas)

Graduate and Postdoctoral Advisors

Postdoctoral Advisor: Bill Karasov  MS and PhD Advisor: Timothy Moermond

Thesis Advisor and Postgraduate-Scholar Sponsor

Graduate Students (24 total)

Ellen Andresen (Ph.D.); Maria Barreto (MS); Margaret Byrne (MS); Kris Callis (current Ph.D.); Connie Clark (Ph.D); Trevor Caughlin (current, Ph.D.); Jackson Frechette (current Ph.D.); Alex Jahn (Ph.D); Jill Jankowski (current, Ph.D); Mathew Jones (MS); Gustavo Londoño (current, Ph.D.); Silvia Lomàscolo (Ph.D.); Carlos Manchego (current, MS); Marvin Morales (current, Ph.D.); Kurt Merg (MS.); Susan Moegenburg (PhD); Greg Pryor (PhD); Julian Resasco (current, Ph.D.); Carla Restrepo (Ph.D.); Ivan Samuels (MS); Lynn Sivhira (MS); Patricia Townsend (MS); Eric VanderWerf (Ph.D.); Daniel Wenny (Ph.D.)

Postgraduate-Scholar Sponsor (11 total)

Lars Brudvig (Ass. Prof., Michigan State U.); Martin Cipollini (Prof., Berry College, Rome, GA); Ido Izhaki (Prof., Haifa U., Haifa, Israel); Charles Kwit (Ass. Prof., Univ. Tenn.); John McCarty (Assoc. Prof., Univ. of Nebraska); Scott Pearson (Scientist, Div. of Nat. Res., WA); Pedro Rey (Prof., U. of Granada, Spain); Martin Schaefer (Asst. Prof., U. Freiberg, Germany); Sarah Sargent (Allegheny College, Meadville, PA); Wesley Silva (Prof., U. of Campinas, Brazil); Josh Tewsbury (Assoc. Prof., U. of Washington)
BIOGRAPHICAL SKETCH: James C. Oliverio

Professional Preparation

Bard College  Master of Fine Arts (MFA) 1996.
University of Georgia  ABJ in Communications, cum laude 1980.
Cleveland Institute of Music  Composition & Electronic Music studies 1974-1976

Appointments

Director, Digital Worlds Institute  January 2001-present
- Professor of Music
- Professor of Digital Media

University of Florida

Associate Professor  August 1995-December 2000
- Director of the Graphics, Visualization and Usability (GVU) Audio Lab
- Artist in Residence

Georgia Institute of Technology

Associate Professor  August 1991-June 1995
- Director of Music Technology

Georgia State University

Producer and Director  September 1981-June 1995
OMI Studios
Atlanta, Georgia USA

PUBLICATIONS MOST CLOSELY RELATED TO PROPOSED PROJECT


HONORS AND AWARDS

Recipient of the International Digital Media and Arts Association (IDMAA) nationally peer-reviewed Award for the “Most Innovative Program 2008”

Inaugural “Peoria Prize for Creativity” (2005) for producing the globally-distributed performing arts collaboration entitled “Hands across the Ocean”.


Five Emmy Awards for Excellence in Music and Sound Design from the Atlanta chapter of the National Academy of Television Arts and Sciences (1985-1998)

SYNERGISTIC ACTIVITIES

Globally Distributed Real-time Collaboration Systems

• In Common:TIME (2005-2008) a series of real-time interactive globally-distributed network-based performances, utilizing the NetroNome Online Media Environment (NOME) system. In Common:TIME (ICT) has now developed into ongoing international collaborations with research institutions including the Korea Advanced Institute of Science and Technology (KAIST), the Red Universitaria Nacional (REUNA) of Santiago, Chile, the Australasian Cooperative Research Centre for Interaction Design (ACID) at the Queensland University of Technology in Brisbane, the Digital Knowledge Exchange (DKE) of Doncaster, England, the New World School of the Arts (NWSA) in Miami, the Egyptian Informatics Research Institute in Alexandria and the UF Colleges of Fine Arts and Engineering. Each of the projects in ICT series was a fully-produced interactive performing arts experience:

ICT: SIGGRAPH (November 2005) – Los Angeles Convention Center, linking performing artists in Australia, Korea, England, Chile and three locations in USA.

ICT: Maximum Impact (June 2007) – Ingenuity Festival of Art and Technology, Cleveland, Ohio, linking percussionists in Alaska, Florida, throughout Ohio and onstage in Playhouse Square.


ICT: Children of a Common Mother (February 2007) – 56th Annual Conference of the Center for Latin American Studies, University of Florida, linking ethnic and indigenous artists and performers in locations throughout the Americas ranging from the Amazon to the Artic circle.

ICT: Hands Across the Ocean (February 2005) – Doncaster Education City, UK, linking actors, musicians and dancers in England, Chile, Australia, Korea and the United States.
Richard E. Ferdig
Research Professor, Research Center for Educational Technology
Professor, Instructional Technology, Lifespan Development & Educational Sciences
Kent State University
321 Moulton Hall
Kent, OH 44242-0001
rferdig@gmail.com

Education
Michigan State University  Ph.D., Educational Psychology; Educ. Technology  2000
Michigan State University  M.A., Educational Psychology; Instructional Design  1996
Calvin College  B.A., Psychology  1994

Professional Appointments
Professor, Kent State University  2009-  
Associate Professor, University of Florida  2006-2009
Assistant Professor, University of Florida  2001-2006
Visiting Assistant Professor, Michigan State University  2000-2001
Instructor & Teaching Assistant, Michigan State University  1996-2000
Visiting Lecturer, Wyzsza Szkola Pedagogiczna: (Krakow, Poland)  1995-1996
Teaching Assistant, Calvin College  1993-1994

Select Publications—Five Most Closely Related to the Project

Five Other Significant Publications


**Synergistic Activities**

*Teaching and Learning in Virtual Schools:* As a part of my role as a PI for an AT&T Foundation Grant, I work with 22 states and their virtual schools. I help them analyze data to impact both policy and practice.

*Online Education:* We currently work with our program, our department, our college, and others within the university to offer online degrees to graduate students. In addition to teaching, we also research the efficacy of this new medium.

*Serving the Broader Educational Technology Community:* I currently serve on 8 editorial review boards for national journals; I am also the Editor of the *International Journal of Gaming and Computer-Mediated Simulations*.

*Outreach to Schools:* I work with a number of local teachers to design and implement innovative educational technology curricula. These collaborations have resulted in both classroom tools and significant research findings.

*Innovative Technologies:* I have partnered with various programs on campus to develop innovative technologies for teaching and learning. One of my latest projects is an online center to support fathers of autistic children.

**Collaborators & Other Affiliations**

Niki Davis (Iowa State University)  
Richard Hartshorne (UNC-Charlotte)  
James Oliverio (University of Florida)  
David Shaffer (University of Wisconsin)  
Julie Young (Florida Virtual School)  
Jamey Fitzpatrick (Michigan Virtual School)  
Carrie Heeter (Michigan State University)  
P. David Pearson (UC Berkeley)  
Brian Winn (Michigan State University)

**Graduate Advisor:** P. David Pearson
BIOGRAPHICAL SKETCH
Donald L McCabe
Rutgers University
Newark, NJ  07012

Professional Preparation
Undergraduate
1966   A.B. in Chemistry, Princeton University, Princeton, NJ
Graduate
1985  Ph.D. in Management, New York University, New York, NY
1970  M.B.A. in Marketing, Seton Hall University, South Orange, NJ

Appointments
1996-  Professor, Rutgers University
1996-1999 Associate Provost for Campus Development, Newark Campus, Rutgers University
1994-1996    Director, Executive M.B.A. Program, Rutgers University
1988-1996    Associate Professor, Organization Management, Rutgers University
1987-1988    Coadjutant, Organization Management, Rutgers University

Publications

5 Most Relevant to Proposed Research

5 Other Significant Publications


Synergistic Activities

- Founding president and current Director of the Center for Academic Integrity
  Organized a national conference on the topic of academic integrity in March 1992. Over 60 students, faculty and administrators from 28 of the nation's most selective colleges participated in this effort to identify effective strategies to address the changing character of academic integrity in the 1990's. This conference led to the formation of the Center for Academic Integrity. The Center has grown into an organization of over 300 schools currently united in a common effort to develop policies on academic integrity that are more responsive to today's changed student population. Annual conferences have now been held at the University of Maryland (1992), the University of Pennsylvania (1993), Rice (1994), Georgetown (1995), Duke (1996), Babson College (1997), Washington & Lee (1998), Duke (1999), the United States Air Force Academy (2000), Texas A&M (2001), the University of Virginia (2002), the University of San Diego (2003), Kansas State University (2004), Virginia Tech (2005), Colorado (2006), Christopher Newport University (2007), Clemson (2008), and Washington University-St. Louis (2009).

- Consulted with many schools to review their judicial procedures, including Connecticut College, Kansas State, Olin College, Quinnipiac, Stevens Institute, Utah Valley State College, Vanderbilt, Washington & Lee, and Worcester Polytechnic Institute.

- Invited to conduct workshops on academic integrity at numerous university, college, and high school campuses both nationally and internally including: Union County College, Seton Hall University, Dixie State College (UT), St. Lawrence University, The Haverford School, North Rockland (NY) HS, St. Paul's School (NH), Clemson, University of Central Florida, Lyon College, Carolina Health Sciences University, Moraine Valley College, Miami Dade College, Rensselaer, Shue Yan University (Hong Kong) McNair HS (NJ), Urbandale HS (IA), Fairview HS (CO) and the American School of Dubai in the UAE, North Dakota, St. Petersburg College, the Randolph School, Rowan University, Benet Academy, Henry Ford Community College, Benedictine University, University of Montana, Dartmouth College, Clemson, Stonehill College, Salem State College, and Gardner-Webb University, American University in Cairo, Colorado University, IUPUI, Central Michigan, Texas Tech, Norfolk Academy, Colorado College, LaGrange College, University of South Carolina, University of Puerto Rico, Eckerd College, Olin College, Babson College, Notre Dame, University of Manitoba, Byrn Mawr School, West Windsor Plainsboro HS, Oak Knoll School, SUNY – Brockport, Ocean County College, Western Carolina University, Duke, University of Victoria, Syracuse and Cornell, among others.
<table>
<thead>
<tr>
<th>Department</th>
<th>Position</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Florida</td>
<td>Library</td>
<td>Michelle Foss</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Library</td>
<td>Amy G. Buhler</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Library</td>
<td>Margeaux C. Johnson</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Biology</td>
<td>Douglas J. Levey</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Biology</td>
<td>James C. Oliverio</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Biology</td>
<td>Douglas J. Levey</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Biology</td>
<td>James C. Oliverio</td>
</tr>
</tbody>
</table>

**SUMMARY**

**PROPOSAL BUDGET**

**Proposed Budget**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Senior Personnel</td>
<td>PI/PD, Co-PI’s, Faculty &amp; Other Senior Associates</td>
<td>$72,393</td>
</tr>
<tr>
<td>B. Other Personnel</td>
<td>Total Salaries and Wages (A+B)</td>
<td>$90,374</td>
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<tr>
<td>C. Fringe Benefits (IF CHARGED AS DIRECT COSTS)</td>
<td>Total Salaries, Wages and Fringe Benefits (A+B+C)</td>
<td>$72,393</td>
</tr>
<tr>
<td>D. Equipment (List item and dollar amount for each item exceeding $5,000.)</td>
<td>Server-Hardware</td>
<td>$2,400</td>
</tr>
<tr>
<td>E. Travel</td>
<td>Total Number of Participants</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Direct Costs**

- Materials and Supplies: $0
- Publication Costs/Documentation/Dissemination: $0
- Consultant Services: $14,500
- Computer Services: $670
- Subawards: $0
- Other: $0

**Total Other Direct Costs**: $15,170

**Total Direct Costs (A Through G)**: $111,194

**I. Indirect Costs (F&A) (Specify Rate and Base)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>MTDC (Rate: 33.6000, Base: 108544)</td>
<td>$36,471</td>
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<tr>
<td>Total Indirect Costs (F&amp;A)</td>
<td>$147,665</td>
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</tbody>
</table>

**J. Total Direct and Indirect Costs (H + I)**: $147,665

**K. Residual Funds**: $0

**L. Amount of this Request (J) or (J Minus K)**: $147,665

**M. Cost Sharing Proposed Level**

<table>
<thead>
<tr>
<th>Proposed Level $</th>
<th>Agreed Level if Different $</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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</tbody>
</table>

**FOR NSF USE ONLY**

**PI/PD Name**

Michelle L. Foss

**Indirect Cost Rate Verification**

**Date Checked**

**Date Of Rate Sheet**

**Initials - ORG**

\*Electronic Signatures Required for Revised Budget
# Summary Proposal Budget

## Year 2

**Organization**

University of Florida

**Principal Investigator / Project Director**

Michelle L Foss

### A. Senior Personnel: PI/PD, Co-PI's, Faculty and Other Senior Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>CAL</th>
<th>ACAD</th>
<th>SUMR</th>
<th>Requested by Proposer</th>
<th>Funded by NSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michelle L Foss</td>
<td>Science &amp; Technology Librarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amy G Buhler</td>
<td>Engineering Librarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Margeaux C Johnson</td>
<td>Science &amp; Technology Librarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douglas J Levey</td>
<td>Professor - Biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James C Oliverio</td>
<td>Director DWI - Professor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 6. Others (List Individually on Budget Justification Page)

- 0

#### 7. Total Senior Personnel (1 - 6)

- 0

### B. Other Personnel (Show Numbers in Brackets)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Doctoral Scholars</td>
<td></td>
</tr>
<tr>
<td>Other Professionals (Technician, Programmer, etc.)</td>
<td></td>
</tr>
<tr>
<td>Graduate Students</td>
<td></td>
</tr>
<tr>
<td>Undergraduate Students</td>
<td></td>
</tr>
<tr>
<td>Secretarial - Clerical (If Charged Directly)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

#### Total Salaries and Wages (A + B)

75,749

### C. Fringe Benefits (If Charged as Direct Costs)

18,934

#### Total Salaries, Wages and Fringe Benefits (A + B + C)

94,683

### D. Equipment (List Item and Dollar Amount for Each Item Exceeding $5,000.)

- $75,749
- $18,934
- $94,683

### E. Travel

1. Domestic (Incl. Canada, Mexico and U.S. Possessions)

   - 5,000

2. Foreign

   - 0

### F. Participant Support Costs

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stipends</td>
<td>0</td>
</tr>
<tr>
<td>Travel</td>
<td>0</td>
</tr>
<tr>
<td>Subsistence</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>2,000</td>
</tr>
</tbody>
</table>

#### Total Number of Participants (200)

2,000

### G. Other Direct Costs

1. Materials and Supplies

   - 0

2. Publication Costs/Documentation/Dissertation

   - 0

3. Consultant Services

   - 10,500

4. Computer Services

   - 1,340

5. Subawards

   - 0

6. Other

   - 0

#### Total Other Direct Costs

11,840

### H. Total Direct Costs (A Through G)

113,523

### I. Indirect Costs (F&A) (Specify Rate and Base)

#### MTDC (Rate: 33.6000, Base: 111523)

- 37,472

#### Total Indirect Costs (F&A)

150,995

### J. Total Direct and Indirect Costs (H + I)

150,995

### K. Residual Funds

0

### L. Amount of This Request (J) or (J Minus K)

$150,995

### M. Cost Sharing Proposed Level

0

**PI/PD Name**

Michelle L Foss

**Org. Rep. Name**

*For NSF Use Only*

**Date**

Date Checked: 0

Date of Rate Sheet: 0

Initials - ORG: 0

---

*Electronic Signatures Required for Revised Budget*
### SUMMARY PROPOSAL BUDGET

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>PROPOSAL NO.</th>
<th>DURATION (months)</th>
<th>FOR NSF USE ONLY</th>
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</thead>
<tbody>
<tr>
<td>University of Florida</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR | AWARD NO. | |
|--------------------------------------|-----------||
| Michelle L Foss | | |

<table>
<thead>
<tr>
<th>A. SENIOR PERSONNEL: PI/PD, Co-PI’s, Faculty and Other Senior Associates</th>
<th>NSF Funded Person-months</th>
<th>Funds Requested by proposer</th>
<th>Funds granted by NSF (if different)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Michelle L Foss - Science &amp; Technology Librarian</td>
<td>CAL</td>
<td>ACAD</td>
<td>SUMR</td>
</tr>
<tr>
<td>2. Amy G Buhler - Engineering Librarian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Margeaux C Johnson - Science &amp; Technology Librarian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Douglas J Levey - Professor - Biology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. James C Oliverio - Director DDI - Professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7. ( 5 ) TOTAL SENIOR PERSONNEL (1 - 6)</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>1. (0) POST DOCTORAL SCHOLARS</td>
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<tr>
<td>2. (11) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)</td>
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</tr>
<tr>
<td>3. (0) GRADUATE STUDENTS</td>
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<tr>
<td>4. (0) UNDERGRADUATE STUDENTS</td>
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<tr>
<td>5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)</td>
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</tr>
<tr>
<td>6. (0) OTHER</td>
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<tr>
<td>TOTAL SALARIES AND WAGES (A + B)</td>
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<table>
<thead>
<tr>
<th>C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)</th>
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<tr>
<td>TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)</td>
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<table>
<thead>
<tr>
<th>D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)</th>
<th>$ 2,400</th>
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<tr>
<td>TOTAL EQUIPMENT</td>
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<tr>
<th>E. TRAVEL</th>
<th>1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)</th>
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<td>2. FOREIGN</td>
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<tr>
<th>F. PARTICIPANT SUPPORT COSTS</th>
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<td>TOTAL NUMBER OF PARTICIPANTS (215)</td>
<td>TOTAL PARTICIPANT COSTS</td>
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<table>
<thead>
<tr>
<th>G. OTHER DIRECT COSTS</th>
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<td>2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION</td>
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<td>3. CONSULTANT SERVICES</td>
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<td>4. COMPUTER SERVICES</td>
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<td>5. SUBAWARDS</td>
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<td>6. OTHER</td>
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<td>TOTAL OTHER DIRECT COSTS</td>
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| H. TOTAL DIRECT COSTS (A THROUGH G) | 224,717 |

| I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) | |

| J. TOTAL INDIRECT COSTS (F & A) | 73,943 |
| K. RESIDUAL FUNDS | 0 |

| L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) | $ 298,660 |

| M. COST SHARING PROPOSED LEVEL | 0 |
| AGREED LEVEL IF DIFFERENT | $ |

<table>
<thead>
<tr>
<th>PI/PD NAME</th>
<th>Michelle L Foss</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ORG. REP. NAME*</th>
<th>Date Checked</th>
<th>Date Of Rate Sheet</th>
<th>Initials - ORG</th>
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*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET
Budget Justification – NSF EESE: Gaming Against Plagiarism

UF Libraries Personnel
Michelle Foss, MLS (Principal Investigator, 2 months of effort year-1, 2 months of effort year-2) – Foss will provide overall project management and coordination, in consultation with the Libraries’ grants management office, throughout the project grant period. She will facilitate communication and planning between the DWI faculty and staff, I-Cubed Program faculty and staff, partnering institutions and consultants. Her responsibilities include managing monthly in person and phone conferences with GAP project team members; overseeing the content development; coordinating evaluation and feedback loops at every level of the project with external evaluators and the librarians managing user testing; maintaining the project tracking schedule and communicating the schedule to all team members. She will supervise and provide expertise in all aspects of production, review, and revisions of content for game iterations. Foss will manage distribution of game and online surveys to partnering institutions, and manage data collection and reporting out of findings. (Computation: $47,797 Annual Salary + $13,574 Fringe benefits x 2 months X 2 years = $20,498)

Amy Buhler, MLS (Co-PI, 2 months of effort year-1, 2 months of effort year-2) - Drawing on her experiences in designing plagiarism tutorials and classes as well as her working relationships with Engineering faculty, Buhler will serve primarily as one of the content experts that will produce relevant plagiarism scenarios for content development of the GAP project. Additionally, she will assist in the organization of the usability testing through all iterations; co-facilitate implementation by partners; co-coordinate that creation, administration, analysis of partnering institutions’ game survey data; and support the PI in general project management as needed. She will also facilitate and track the GAP team members’ publications and presentations related to this project. (Computation: $49,000 Annual Salary + $13,916 Fringe benefits x 2 months x 2 years = $21,014)

Margeaux Johnson, MLS (Co-PI, 2 months of effort year-1, 2 months of effort year-2) - Johnson will design the user testing protocols for the iterative game development and coordinate user testing of graduate students utilizing the Emerging Technologies User Experience Lab in the UF Libraries. She will also serve as a content development contributor and will play a supportive role in outreach to science and engineering departments both at UF and partnering institutions to implement the game. (Computation: $43,000 Annual Salary + $12,212 Fringe benefits x 2 months X 2 years = $18,440)

Melody Royster, MLS/Technician (.25 of 1 month effort year-1) - Royster will assist with the research and collection of plagiarism cases and the drafting of relevant scenarios for the content of the game and will provide necessary support for coordinating and performing usability testing in partnership with I-Cubed Program. (Computation: $42,000 Annual Salary + $11,928 Fringe benefits x .25 of 1 month = $1,123)

UF Digital Worlds Institute (DWI)
James Oliverio, MFA, Professor of Digital Arts and Sciences and Director of Digital Worlds Institute (Co-PI, 3 weeks of effort in year-1; 1 month of effort year-2) responsible for the activities of the entire GAP technical and digital art team listed below, as well as the sustained integration of the game build and iterative refinements with the GAP Librarian, Evaluation and Consultant teams. (Computation: $203,109 Annual Salary + $57,683 Fringe benefits x .75 of 1 month (year-1) X 1 month (year-2) = $38,017)

Arturo Sinclair, Technician (DWI faculty, 2 months of effort in year-1; 2 months of effort in year-2) Digital Artist responsible for the overall “look and feel” of the 3D GAP intervention.
Coordinates and integrates the modeling, texturing, lighting and esthetic of the game. He is the Artist in Residence at DWI, with a strong artistic and technical background and over 25 years of experience in fields such as gaming, film, special effects cinematography, theater, puppetry and computer graphics. Before joining DWI, Arturo was Special Effects Supervisor for SZM, the premier broadcast studio in Munich, Germany, where he was in charge of visual effects production for weekly television series and feature films. He designed the virtual reality environment for Paramount’s production “Virtuosity”, starring Denzel Washington and Russell Crowe, the first major feature film whose special effects were designed and produced entirely on a PC platform (Computation: $69,714 9-month Salary + $19,799 Fringe benefits x 2 months x 2 years = $29,898)

Nandini Giri, Technician (2 months of effort in year-1; 2 months of effort in year-2) The 3D modeling/Game Programmer for the project. She will be responsible for the modeling of objects, avatars and in-game visual elements and their operation within the GAP intervention. She has managed and developed the application “VETS” in the game engine Quest 3D for a Department of Defense Project titled “Design of Effective Therapeutic Interventions for mild TBI/PTSD Using Interactive Virtual Worlds Environments, for war veterans with post traumatic stress disorder. She has developed a multimedia show, and provided technical support for DWI for collaborative network performance held at Ubicomp Conference 2009 in Orlando Florida. (Computation: $52,000 Annual Salary + $17,212 Fringe benefits x 2 months x 2 years = $23,116)

Lokesh Bhoobalan, Technician (OPS 2 months of effort in year-1; 2 months of effort in year-2) Database and Integration Programmer responsible for storage and integration of the players in-game accomplishments/scoring/progress into a custom GAP database. As a technician/programmer at DWI his duties include interactive media programming, virtual environment coding and implementation and other technical duties as assigned. (Computation: $52,000 Salary + $1,092 Fringe benefits x 2 months x 2 years = $17,732)

Anton Yudin, GRA Student Technician (2 months of effort in year-1; 2 months of effort in year-2) JAVA and Web Programmer responsible for the JAVA-based elements of coding web-based user access and resultant data storage, as well as the monitoring and updates of the open-source jMonkey Engine (jME). He has over eight years software development experience in object oriented programming. He has designed developed and supported a variety of enterprise level projects for hospitals, hotels, and pharmacy businesses. (Computation: $12,528 Annual Salary + $1,453 Fringe benefits x 2 months x 2 years = $4,670)

Ashutosh Ranjan, GRA Student Technician (2 months of effort in year-1; 2 months of effort in year-2) Interface and Interaction Programmer responsible for integrating JAVA-based elements, data storage, and updates of the open-source jMonkey Engine (jME) into appropriate user-navigable screens and levels. He has created gaming and virtual environments for research applications including the Neuroprosthetic Training System (NETS) project interfacing brain output with the gaming engine Unity3D. (Computation: $12,528 Annual Salary + $1,453 Fringe benefits x 2 months x 2 years = $4,670)

UF I-Cubed Program (NSF IGERT Program)
Douglas Levey, Ph.D., (Co-PI) will serve as Graduate Student Recruiter at UF coordinating with I-Cubed Student Advisory Council members, NSF-funded graduate students, the College of Engineering, and the Graduate School staff to recruit student game players for iterative game development and the final beta-testing of the game. He will serve as project liaison to UF campus administrators and STEM departments to provide progress updates and to promote its
use broadly. He will also be involved in game content development as needed. (Computation: $109,921 for 9-month Salary + $31,218 Fringe benefits x .25 of 1 month x 2 years = $5,878)

**Consultants**

**Richard Ferdig, Ph.D.**  
His role will be to support the design and development of the game, the iterative testing during game development, and the evaluation of the game in its final design. He will create the pre and post tests used in evaluation and will be responsible for analyzing and reporting on the effectiveness of the game in achieving its prescribed learning objectives. (Consulting fee $750/day x 14 days x 2 years = $21,000)

**Donald McCabe, Ph.D.**  
He will assess efficacy of game content as developed and advise accordingly, and assure that multicultural ethical differences are integrated into the game design. (Consulting fee = $800/day x 5 days year-1= $4,000)

**Equipment**

**Server & Related Hardware:** The network attached hardware for serving the GAP intervention requires a dual core Processor with at least 4G of memory, at least 2 Hard Disk Drives, a RAID 1 HDD Controller and a 1 Gbit Ethernet network adapter, such an appropriately configured Dell PowerEdge R510. (year-1 = $2,400)

**Travel:** $2,000 is included for the PI or her designee to attend two meetings, at NSF or another appropriate venue, for discussion and interaction with other awardees, as required by the grant. An additional $6,000 for travel is included to permit three to four other project team members to present GAP to professionals during conferences and meetings represented by the development team: academic libraries, ethics pedagogy, educational gaming, and STEM graduate student education. Examples of these are included in the narrative. (Computation: $2,000 for NSF travel + $6,000 = $8,000)

**Other**

**Computer & Network Services:** provides a dedicated port for access to the University network, including 24/7 maintenance for any connectivity and Quality of Service problems. (Computation: $70/month x 6 months in year-1 and 12 months in year-2 = $1,260)

**Participant Recruitment Supplies:** To support recruitment efforts each participating university will receive $250 to purchase an award for those who become eligible for the award by completing the required iterative testing or beta-testing processes. Each of the seven partnering universities will purchase an item (flip camera or i-pod touch) to incentivize game and survey completion. UF students will come from two groups, one for iterative testing and another for beta-testing, thus totaling 2 awards. (Computation: 1 group @ $250 in year-1 + $2,000 for 8 groups @$250/group in year-2 = $2,250)

**Hardware Maintenance:** Essential to GAP software/server system to be fully operational throughout grant period and beyond. Current multi-year pricing for Dell server hardware ProSupport for IT and Mission Critical 4HR 7x24 onsite service pack (Computation: $750 for 3 year ProSupport per current quote from Dell computer)

**Indirect Costs:** IDC was applied to direct expenses: salaries, fringe benefits, consultants, computer services, travel. (Computation: $108,544 year-1 + $111,523 year-2 x .336 = $73,943)

**Total Request:** Total Direct Costs of $224,717 + IDC of $73,943 = $298,660
The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

<table>
<thead>
<tr>
<th>Investigator: Michelle Foss</th>
<th>Other agencies (including NSF) to which this proposal has been/will be submitted.</th>
</tr>
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<tbody>
<tr>
<td>Support:</td>
<td>□ Current □ Pending □ Submission Planned in Near Future □ *Transfer of Support</td>
</tr>
<tr>
<td>Project/Proposal Title:</td>
<td>Gaming Against Plagiarism</td>
</tr>
<tr>
<td>Source of Support:</td>
<td>NSF</td>
</tr>
<tr>
<td>Total Award Amount: $</td>
<td>298,660</td>
</tr>
<tr>
<td>Total Award Period Covered:</td>
<td>09/01/10 - 08/31/12</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Person-Months Per Year Committed to the Project.</td>
<td>Cal: 2.00  Acad: 0.00  Sumr: 0.00</td>
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| Support:                  | □ Current □ Pending □ Submission Planned in Near Future □ *Transfer of Support |
| Project/Proposal Title:   |                                                                                  |
| Source of Support:        |                                                                                  |
| Total Award Amount: $     |                                                                                  |
| Total Award Period Covered: |                                                                                  |
| Location of Project:      |                                                                                  |
| Person-Months Per Year Committed to the Project. | Cal:   Acad:    Sumr:    |

| Support:                  | □ Current □ Pending □ Submission Planned in Near Future □ *Transfer of Support |
| Project/Proposal Title:   |                                                                                  |
| Source of Support:        |                                                                                  |
| Total Award Amount: $     |                                                                                  |
| Total Award Period Covered: |                                                                                  |
| Location of Project:      |                                                                                  |
| Person-Months Per Year Committed to the Project. | Cal:   Acad:    Sumr:    |

| Support:                  | □ Current □ Pending □ Submission Planned in Near Future □ *Transfer of Support |
| Project/Proposal Title:   |                                                                                  |
| Source of Support:        |                                                                                  |
| Total Award Amount: $     |                                                                                  |
| Total Award Period Covered: |                                                                                  |
| Location of Project:      |                                                                                  |
| Person-Months Per Year Committed to the Project. | Cal:   Acad:    Sumr:    |

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*
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Support: □ Current    □ Pending    □ Submission Planned in Near Future    □ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $  
Total Award Period Covered:  
Location of Project: 
Person-Months Per Year Committed to the Project.  
Cal:    Acad:    Sumr:  

Support: □ Current    □ Pending    □ Submission Planned in Near Future    □ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $  
Total Award Period Covered:  
Location of Project: 
Person-Months Per Year Committed to the Project.  
Cal:    Acad:    Sumr:  

Support: □ Current    □ Pending    □ Submission Planned in Near Future    □ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $  
Total Award Period Covered:  
Location of Project: 
Person-Months Per Year Committed to the Project.  
Cal:    Acad:    Sumr:  

Support: □ Current    □ Pending    □ Submission Planned in Near Future    □ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $  
Total Award Period Covered:  
Location of Project: 
Person-Months Per Year Committed to the Project.  
Cal:    Acad:    Sumr:  

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*
# Current and Pending Support

(See GPG Section II.C.2.h for guidance on information to include on this form.)

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<td>Project/Proposal Title: Gaming Against Plagiarism</td>
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### Support: □ Current  □ Pending  □ Submission Planned in Near Future  □ *Transfer of Support

<table>
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<th>Project/Proposal Title: Gaming Against Plagiarism</th>
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<tr>
<td>Source of Support: NSF</td>
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<td>Total Award Amount: $ 298,660</td>
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<td>Total Award Period Covered: 09/01/10 - 08/31/12</td>
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<td>Person-Months Per Year Committed to the Project. Cal: 2.00  Acad: 0.00  Sumr: 0.00</td>
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### Support: □ Current  □ Pending  □ Submission Planned in Near Future  □ *Transfer of Support

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<td>Source of Support:</td>
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<tr>
<td>Person-Months Per Year Committed to the Project. Cal:</td>
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### Support: □ Current  □ Pending  □ Submission Planned in Near Future  □ *Transfer of Support

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### Support: □ Current  □ Pending  □ Submission Planned in Near Future  □ *Transfer of Support

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<td>Acad:</td>
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<td>Sumr:</td>
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*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*

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Page G-3  USE ADDITIONAL SHEETS AS NECESSARY
# Current and Pending Support
(See GPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

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<th>Investigator: Douglas Levey</th>
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<table>
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<th>Pending</th>
<th>Submission Planned in Near Future</th>
<th>*Transfer of Support</th>
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<table>
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<tr>
<th>Project/Proposal Title: Collaborative Research: Effects of corridors and edges on plant populations</th>
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<th>Source of Support: NSF</th>
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<th>Total Award Amount: $181,467</th>
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<th>Location of Project: Savannah River Site, South Carolina</th>
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<th>Submission Planned in Near Future</th>
<th>*Transfer of Support</th>
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<table>
<thead>
<tr>
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<tr>
<th>Project/Proposal Title: Dissertation Research: Using hummingbirds to test the link between bird and plant distributions in tropical montane forest</th>
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*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*
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<tr>
<th>Investigator: Douglas Levey</th>
<th>Other agencies (including NSF) to which this proposal has been/will be submitted.</th>
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| Support: | Current | Pending | Submission Planned in Near Future | *Transfer of Support |
| Project/Proposal Title: | Collaborative Research: Keeping up with global warming in fragmented, connected, and continuous landscapes |
| Source of Support: | NSF |
| Total Award Amount: | $ 164,045 |
| Total Award Period Covered: | 06/15/10 - 06/14/14 |
| Location of Project: | Savannah River Site, South Carolina |
| Person-Months Per Year Committed to the Project. | Cal: 0.00 | Acad: 0.00 | Sumr: 0.00 |

| Support: | Current | Pending | Submission Planned in Near Future | *Transfer of Support |
| Project/Proposal Title: | Gaming Against Plagiarism |
| Source of Support: | NSF |
| Total Award Amount: | $ 298,660 |
| Total Award Period Covered: | 09/01/10 - 08/31/12 |
| Location of Project: | Gainesville, FL |
| Person-Months Per Year Committed to the Project. | Cal: 0.00 | Acad: 0.00 | Sumr: 0.25 |

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*
**Current and Pending Support**
(See GPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

<table>
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<tr>
<th>Investigator: James Oliverio</th>
<th>Other agencies (including NSF) to which this proposal has been/will be submitted.</th>
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| Project/Proposal Title: Gaming Against Plagiarism |
| Source of Support: NSF | |
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| Location of Project: University of Florida | |
| Person-Months Per Year Committed to the Project. | |
| Cal: 1.75 | Acad: 0.00 | Sumr: 0.00 |

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.*
FACILITIES, EQUIPMENT & OTHER RESOURCES

FACILITIES: Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. USE additional pages as necessary.

Laboratory: The UF Libraries User Experience Lab is a place where librarians can test the usability of library websites, digital resources, online learning modules, and technology tools. Currently, the lab is located on UF’s main campus in the Smathers Library Emerging Technologies Division. The lab

Clinical:

Animal:

Computer: Computer and Networking Services: UF Open Systems group supports all of the central University of Florida servers, including those for the Registrar, course management system, University financial offices, web, and so on. As such, the Open Systems group provides support for all

Office:

Other: University of Florida Digital Worlds Institute Lab and Facilities Research, Education and Visualization Environment (REVE).

The REVE is a flexible 5,500 sq. ft. interactive digital media environment designed and built for 21st century for research and education. The

MAJOR EQUIPMENT: List the most important items available for this project and, as appropriate identifying the location and pertinent capabilities of each.

OTHER RESOURCES: Provide any information describing the other resources available for the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.

Both consultants, Ferdig and McCabe have provided letters of commitment confirming availability during the grant period and details of their respective responsibilities.

Grants management and project facilitation services are provided by the Libraries Grants Management Office.
LABORATORY FACILITIES (continued):

consists of two computers and a variety of other technology products that rotate through for specific emerging technology projects (i.e. Kindle, Sony Reader, iPod Touch). Usability testing can be conducted simultaneously with two individuals. The lab is equipped with Techsmith Morae software. This allows librarians to conduct task-based testing and monitor students’ interactions via recorder/observer software, video recording, audio recording, and screen capture software. The lab available to librarians for the duration of the project.

COMPUTER FACILITIES (continued):

aspects of one of the largest academic institutions in the world. There are two data center locations, both with full generator redundancy, and both meeting all FERPA, HIPAA, and other data security requirements, and both secure against hurricanes and environmental factors. The GAP game and all related files and data will reside on a UF server that will take full advantage of these considerable resources.

OTHER FACILITIES (continued):

building includes the following studio and lab spaces:

Polymodal Immersive Theater (PIT): Provides large-scale immersive visualization capabilities for an audience of up to 50 people. The PIT offers a 5-projector wrap-around display surface with integrated 5.1 surround sound, embedded multi-threaded video-conferencing and Internet2 connectivity.

Virtual Production Studio (VPS): A large open studio with two green screen insert stages, Organic Motion Stage and BioStage wireless, markerless motion capture systems, large-scale video projection, Internet2 connectivity and Virtual World Environment design, programming and integration software and hardware. The MoCap system is used for capturing complete human movement for gaming and virtual environment production. Gaming and interactive virtual environment software currently in use includes the jMonkey Engine (jME), Unity 3D, Quest 3D as well as Vega and OpenSceneGraph.

Digital Media Suite (DMS): A variety of interactive media production and post-production systems, ranging from digital video editing and compositing to audio and 3D animation tools.

Big REVE Image Generator (BRIG): An integrated computing and real-time image processing system incorporating both Nvidia QuadroPlex graphics
OTHER FACILITIES (continued):

computer and a PC cluster connected to the PIT immersive display system.

The New Automated Virtual Environment (NAVE) Lab

The original development goal of the NAVE project was to create a low-cost, multi-screen, multi-user, stereoscopic, multi-sensory virtual environment that preserves many of the desirable elements of the original 20th century CAVE environments but could be built (and maintained) at a fraction of their traditional cost.

The NAVE is a three-screen rear-projection environment. Each screen is eight feet wide by six feet in height. The two side screens can be positioned at multiple angles to the center screen at angle settings of 90, 120, and 180 degrees. Imagery for each screen can be created on an integrated graphics workstation that can then control each of the separate graphics rendering CPUs. Stereoscopic 3D imaging can also be achieved. Audio is provided by a 5.1 surround sound speaker system.

A variety of development tools and hardware are also available in the NAVE space, ranging from multiple Linux-based workstations to Windows and Mac platforms, in addition to Internet2 connectivity and embedded Access Grid functionalities.
February 26, 2010

Ethics Education in Science and Engineering Program
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear NSF:

As President of the University of Florida, I am only too familiar with the problem of plagiarism. As the principal investigator on a recent $I^3$ grant from the National Science Foundation to the University of Florida, I am also committed to adopting fundamental improvements in how our graduate students are trained in conducting ethical research.

That is why I am pleased to lend my enthusiastic support to the Gaming Against Plagiarism (GAP) proposal.

Like other universities, the University of Florida seeks to combat plagiarism through a number of outlets, including workshops, online tutorials and by integrating ethics into classes. But the scale of the problem makes clear that more creative, long-lasting solutions are needed. Gaming Against Plagiarism offers just such a potential solution.

If Gaming Against Plagiarism is successful, and I believe it will be, we will endeavor to ensure its use campus-wide. I pledge to work with the Provost, the Vice President for Research, the Dean of the Graduate School, and the co-PIs of the $I^3$ project to facilitate the broadest possible adoption of the program by the University of Florida.

Isaac Newton said, “If I have seen further, it is only by standing on the shoulders of giants.” In this era of global competition, we desperately need to make science and engineering students understand that the path to success is to recognize and improve on the work of others – not copy it and pass it off as their own. Gaming Against Plagiarism offers a promising step in that direction, one I hope can spur positive change across the University.

Sincerely,

J. Bernard Machen

The Foundation for The Gator Nation
An Equal Opportunity Institution
February 26, 2010

Michelle Foss, MLS
Principal Investigator – GAP Project
Marston Science Library
University of Florida
PO Box 117000
Gainesville, FL 32611-7000

Dear Ms. Foss:

I am very pleased to serve as a gaming evaluator, designer, and as support for the overall evaluation on the Gaming Against Plagiarism project being proposed by the University of Florida. This letter confirms my project consulting fee of $21,000 for fourteen days of work per year during the grant period from 9/1/10 through 8/31/12.

As part of the gaming and evaluation development team, I understand that I have four main tasks.

1. I will provide initial design support and ideas during the planning phase.
2. During the development and review phase, I will review iterations of the game and provide feedback according to research-based design principles. I will also review participant feedback during the phase and make recommendations based on research-based best practices.
3. During the development and review phase, I will work with the team to create an appropriate pre- and post-survey.
4. During the implementation phase, I will help collect and analyze data, as well as write up reports and presentations based on the findings of the study.

My long term interest and research into the use of games for ethical behavior of college students is both personal and professional. Personally, I have unfortunately witnessed multiple accounts of unethical behavior at multiple universities—both stateside and in Europe. What is perhaps most unfortunate is that many times these incidences were unintended. Professionally, my research agenda and reputation focuses on the use of games and simulations for teaching and learning. I currently edit the International

Because of my work within STEM, I am fully aware of the seriousness of what this project is attempting to accomplish: 1) preparing STEM graduate students to participate ethically in the global research environment, and 2) using an interactive game to help students distinguish plagiarism practices which might have been accepted and even encouraged in their own countries, but that will be very detrimental to their research careers on the global stage. I believe this project has the potential to dramatically impact the lives of current and future NSF researchers.

Sincerely,

Dr. Richard E. Ferdig
February 20, 2010

Michelle Foss, MLS  
Principal Investigator – GAP Project  
Marston Science Library  
University of Florida  
PO Box 117000  
Gainesville, FL 32611-7000

Dear Michelle,

I am very pleased to serve as a content evaluator and designer on the Gaming Against Plagiarism project being proposed by the University of Florida. This letter confirms my project consulting fee of $4,000 for five days of work during the content development phase of the project, specifically the first three-quarters of the grant period from 9/1/10 through 5/30/11. As part of the content development team, I will review and suggest topics that I have encountered during my many years of research, and offer specific suggestions and give feedback on strategies to integrate the multicultural aspects of plagiarism to provide a common understanding of differences while avoiding judgmental comparisons.

My long term interest and research into the ethical behavior of college students is well documented by the numerous articles I have co-authored with concerned faculty at many institutions both within and outside of the United States. It is particularly gratifying to me to see that the knowledge I have gleaned from my studies is recognized and appreciated by larger communities and that appreciation has resulted in my receiving best paper awards from two subject disciplines for my student ethics research in the last two years.

Coming from a chemistry background, I am fully aware of the seriousness of what this project is attempting to accomplish: 1) preparing STEM graduate students to participate ethically in the global research environment, and 2) using an interactive game to help students distinguish plagiarism practices which might have been accepted and even encouraged in their own countries, but that will be very detrimental to their research careers on the global stage. As we are all aware, the Internet has made the “copy and paste” approach to writing all too easy, and we as faculty members are responsible for helping combat the growing plagiarism problems.

Because I am committed to finding practical solutions to provide effective ethical training for graduate students, I can’t think of a better way than to be involved in this project. It offers an innovative, interactive approach, which is becoming the accepted norm for affecting behavior and effective learning.

Sincerely,

Donald McCabe, Ph.D.
Dear Review Panelist,

Please accept this letter confirming the University of Florida's Student Conduct and Conflict Resolution participation in beta-testing the University of Florida's Gaming Against Plagiarism educational game in 2012. As Director of Student Conduct and Conflict Resolution at the University of Florida, I'm personally excited to participate in this project because our office handles all allegations involving students accused of violating our Student Conduct Code and Student Honor Code, including plagiarism. Additionally, over the last several years in this field, I have observed an increase in the amount of graduate student plagiarism. Our office always looks for ways to decrease the amount of cases but identifying successful educational programs to work with our students before a referral to our office is necessary. I think this project has a great deal of potential to be a great tool to educate students and prevent accidental or innocent violations of our honor code. Having been in this field for 14 years, I am excited to offer my experience and advice to this worthwhile project.

Over the past several years, our office has also had UF Reading & Writing Center Director Dr. Martin Simpson conduct workshops on citing sources and avoiding plagiarism for our students. I've spoken to him, and he sees the game as a potentially valuable addition to our repertoire of methods to help students understand and avoid plagiarism.

Additionally, if this project is successful, I see it being something that could be translated to undergraduate students and other fields of study and perhaps our entire student population of 50,000 students. I will be happy to provide feedback about the game. We will require most students found responsible of violating our plagiarism policy to complete the game unless there are mitigating circumstances. Additionally, we will use the game as a training tool for our student members that hear cases involving allegations of plagiarism. We may also make this game a requirement for all new students that will need to be completed before they are able to register for classes their second semester.

We fully support and plan to participate in this worthwhile project. Thank you for your time in reviewing this proposal.

Sincerely,

Chris Loschiavo, JD
Assistant Dean of Students and Director of Student Conduct and Conflict Resolution
24 February, 2010

Ethics Education in Science and Engineering Program
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear NSF:

We are members of the University of Florida’s Innovation through Institutional Integration (I3) Graduate Student Advisory Council (GSAC). As such, we have been charged by the President, Dean of the Graduate School, and several faculty to help integrate and institutionalize graduate training programs across campus.

We are strongly supportive of the Ethics Education in Science and Engineering proposal being submitted by a team of librarians and faculty, including a co-PI of I3. Given that only 36% of STEM and SBE graduate students in a 2009 University of Florida survey indicated that they had received any sort of formal training in ethics, we are keenly interested in helping to develop such training. The Gaming against Plagiarism (GAP) project would provide a novel, widely-applicable, and culturally sensitive means of teaching students to recognize and avoid plagiarism, the most common type of ethical misconduct in research.

GSAC hereby commits to helping test prototypes of the GAP online game. We will not only participate in the testing ourselves, but will assist in recruiting a highly diverse set of other graduate students in the STEM and SBE disciplines to provide feedback during the game’s development.

Sincerely,
I-3 Graduate Student Advisory Council

[Signatures]

The Foundation for The Gator Nation
An Equal Opportunity Institution
National Science Foundation  
Ethics Education in Science and Engineering Program  
4201 Wilson Blvd.  
Arlington, VA 22230

To Whom It May Concern:

Please accept this letter confirming the University of Florida, College of Engineering’s participation in both the user testing and beta-testing phases of the University of Florida’s Gaming Against Plagiarism (GAP) educational game. As a faculty member in Engineering and Dean of the College of Engineering, I am personally excited to participate in this project because it parallels the College’s goal to equip our graduates to be ethical global researchers.

The College of Engineering has the highest concentration of graduate students on the University of Florida campus and over half are non-US citizens, representing 69 countries. The diversity that the College cherishes in its graduate student population also brings with it challenges in educating students in the definition of plagiarism as it relates to their dissertation research.

GAP will offer a self-paced and interactive solution to facilitate the much needed faculty-student dialog on plagiarism as well as other related academic integrity issues. The College commits to gathering 20-25 graduate students to participate in the initial user testing during the development of the beta product.

In addition, the College will provide feedback in the beta-testing process slated for 2012. Various mechanisms for serving as a platform for the beta-testing include a special workshop for graduate students, incorporation into existing classes with faculty collaboration, and possibly a one-credit course on ethics/academic integrity, contingent upon faculty approval. It is foreseeable that the beta-testing and eventual implementation of the final game product would be incorporated into a regular training process that the College envisions for its graduate students.

The College fully supports this worthwhile and timely project.

Sincerely,

Cammy R. Abernathy  
Dean and Professor of Materials Science and Engineering

The Foundation for The Gator Nation  
An Equal Opportunity Institution
25 February 2010

Ethics Education in Science and Engineering Program
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear Colleagues:

I write in enthusiastic support of Gaming Against Plagiarism (GAP), a proposal to NSF’s Ethics Education in Science and Engineering program by an interdisciplinary team of University of Florida faculty and staff.

The College of Liberal Arts and Sciences clearly recognizes the need for the ethics training GAP would provide. Our graduate students will enter an increasingly globalized workforce in which they will face significant differences in cultural norms about plagiarism. While their own views on the ethical conduct of research must be firmly grounded, they also need to understand different perspectives.

As described in the GAP proposal, the University of Florida is acutely aware of a growing problem with plagiarism. For example, UF’s Director of Student Conduct and Conflict Resolution reported a 55% increase in plagiarism cases between 2007 and 2009. More recently, the University formed a Faculty Senate task force to address issues of academic integrity. As the largest college on campus and the intellectual heart of the university, the College of Liberal Arts and Sciences is central to understanding the problem and contributing to its solution.

The College understands the challenge of teaching ethics to all graduate students in the STEM disciplines, as recently mandated by the America Competes Act. Lectures and tutorials are generally ineffective. I endorse the GAP team’s novel approach of developing an online game in which students learn about the complexities and repercussions of plagiarism by participating in scenarios that involve characters from other cultures.

The College of Liberal Arts and Sciences supports the development and testing of the GAP game, and we anticipate its use as part of ethics training for graduate students in the College.

Sincerely,

Paul D’Anieri
Dean

The Foundation for The Gator Nation
An Equal Opportunity Institution
February 23, 2010

Ethics Education in Science & Engineering Program
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear Review Committee,

I am happy to provide this letter of enthusiastic endorsement for Gaming Against Plagiarism, for which the University of Florida is seeking support from the NSF Ethics Education in Science and Engineering program. I serve as the Associate Dean for Graduate Education and biomedical sciences PhD program director for the UF College of Medicine. I also direct several professional development courses, including “Responsible Conduct of Biomedical Research” and “Essentials of Graduate Research & Professional Development”, so I am familiar with the educational needs of our STEM research trainees.

The research and graduate education deans on our campus are keenly aware of the increasing prevalence of plagiarism, and with substantial populations of international students and scholars in our training programs, the different cultural norms that come into play when addressing plagiarism. Thus, we recognize the need for creative training programs to help our trainees enter a global research workforce. I am particularly impressed with the gaming strategy in the GAP proposal. As we begin to recognize the generational differences in how our graduate students learn and work together, such a learning approach appears to be appropriate to engage our trainees in what to us faculty members is a novel, interactive, multicultural way to make difficult decisions about complex situations.

We see incredible potential value for GAP as a part of our RCR training and professional development activities at UF and beyond. The College of Medicine is committed to supporting this project and will gladly participate in the development and testing of the GAP game. If I may be of any further assistance please feel free to contact me.

Sincerely yours,

Wayne T. McCormack, Ph.D.
Associate Dean for Graduate Education
mccormac@ufl.edu
February 19, 2010

National Science Foundation
Ethics Education in Science and Engineering Program
4201 Wilson Blvd.
Arlington, VA 22230

Dear Review Panelist:

I am pleased to write on behalf of the College of Sciences at the University of Central Florida, to confirm our interest in participating in beta-testing the University of Florida’s educational game *Gaming Against Plagiarism*. As a faculty member in Physics and an Associate Dean, I can attest to the potential importance of this work. I am familiar with too many cases where graduate students, and even new science and engineering faculty, failed to understand basic professional ethics regarding plagiarism. This is the fault of higher education’s past assumption that students would simply pick up the needed knowledge. The increasingly universal understanding is that this knowledge needs to be taught, not absorbed. The proposed project is a potentially important step in helping students understand and internalize their ethical obligations. In the College of Sciences we have PhD and MS programs in Chemistry, Conservation Biology, Physics, and Mathematics, in addition to social sciences. We are eager to test *Gaming Against Plagiarism* in these programs to assess and provide feedback about its effectiveness as a training tool. If it is as useful as hoped, I will seek to institutionalize its use in professional development courses in these programs.

Sincerely,

Michael D. Johnson
Associate Dean
College of Sciences
University of Central Florida
February 18, 2010

Dr. James Oliverio and Ms. Michelle Foss
University of Florida Libraries
Marston Science Library
PO Box 117000
Gainesville, FL 32611

Dear Dr. Oliverio and Ms. Foss,

I have reviewed your project proposal and enthusiastically support your goal to develop a gaming environment for graduate students to learn how to identify and avoid plagiarism within their academic and professional careers. The development of ethical conduct in our students in the Biomedical Engineering Department at Virginia Commonwealth University is a particularly important issue to the faculty, as these students must not only interact with colleagues and mentors, but with patients that depend on our students' ethical conduct in their care.

Please accept this letter confirming the support of the Biomedical Engineering Department at Virginia Commonwealth University to participate in the beta-testing of your GAP program in 2012. I look forward to using it as part of our introductory graduate research seminar course, in which we hope for the opportunity to incorporate it more permanently. We will also be happy to provide any feedback from the faculty and/or graduate students to ensure that this project becomes a success in meeting its important objectives in relation to plagiarism.

Sincerely,

Dianne Pawluk
Assistant Professor
Dept. Biomedical Engineering
Virginia Commonwealth University
National Science Foundation  
Ethics Education in Science and Engineering Program  
4201 Wilson Blvd.  
Arlington, VA 22230

Dear Review Panelist,

Please accept this letter confirming the participation of Loyola Marymount University's Electrical Engineering and Computer Science Department of the Frank R. Seaver College of Science and Engineering in beta-testing the University of Florida's Gaming Against Plagiarism (GAP) educational game in 2012. As a faculty member in Science and Engineering, I'm personally excited about participating in this project and its potential to complement the engineering lessons in our Virtual Engineering Sciences Learning Lab (VESLL) (NSF Grant 0935100) and our graduate course offerings.

GAP fills a need to address training for three audiences. First, many of our graduate students work in the aerospace industry with clearly defined expectations for ethical conduct. Second, our international graduate students from other cultures often have a quite different view of what constitutes ethical behavior and are unable to recognize plagiarism. Third, students new to engineering, such as those involved in VESLL, need to think of ethics as an integral component of their work from the beginning. Engaging activities that enable students to identify and avoid plagiarism would help influence the behavior of all three groups.

We agree to provide feedback to James Oliverio and the PI's on the NSF ESESE Gaming Against Plagiarism project as the game is played by students visiting VESLL or enrolling in Computer Science, Electrical Engineering and Systems Engineering graduate courses such as CMSI/ELEC 601 Graduate Seminar, SELP 540 Engineering Ethics and others which have a requirement to complete a research paper. Our hope is that the GAP game will help improve the quality of papers produced by our students.

Sincerely,

Stephanie E. August, Ph.D.  
Department Director of Graduate Studies  
Electrical Engineering and Computer Science Department  
saugust@lmu.edu  
tel: 1-310-338-5973; fax: 1-310-338-2782
Dear Review Panelist,

It is with great enthusiasm that the School of Engineering and Computer Science endorse the University of Florida's Gaming Against Plagiarism (GAP) educational game and express our willingness and readiness to participate in the testing and data collection related to beta-testing of GAP, which is planned in 2012. As a Professor of Computer Science and Engineering at Oakland University, and Interim Associate Dean of the School of Engineering and Computer Science, I am keenly aware of the increasing need to raise awareness of our students about academic honesty and ethical behavior in a non-threatening setting.

In our curriculum within the School of Engineering and Computer Science (SECS), we have two courses that explicitly address ethical issues. The first course is EGR 280, a core requirement for all engineering and computer science students, with an annual enrollment of 110. The second is the research course CSE 791, taken by Ph.D. students covering a variety of research issues including ethics. Computer Science and Engineering courses have an enrollment of about 12 students per year, 75% of which are foreign nationals. We feel that the gaming approach of GAP would be a very appropriate approach for the ethics and plagiarism material. Since everyone will benefit from training ethical scientists and engineers, the emphasis this game places on creating a “common” code of ethically sound practices related to plagiarism will be extremely beneficial. I believe the finished product will be in very high demand by other faculty on campus.

Thank you for inviting Oakland University to participate in this creative and valuable endeavor. We look forward to participating in this endeavor as it will benefit our students, our profession, and our educational system.

Sincerely yours,

Dr. Fatma Mill,
Professor and Interim Associate Dean
School of Engineering and Computer Science
Oakland University, Rochester MI 48309-4478
National Science Foundation
Ethics Education in Science and Engineering Program
4201 Wilson Blvd.
Arlington, VA 22230

Dear Reviewers,

Please accept this letter confirming my willingness to participate in beta-testing the University of Florida’s Gaming Against Plagiarism educational game in 2012. As a faculty member at the School of Electrical and Computer Engineering, College of Engineering, Purdue University, I am keenly aware of the challenges involved in training students about ethics and plagiarism. This gaming approach appears to be a viable solution to preparing graduate students in their awareness and practice, especially in the STEM disciplines.

I plan to have my students in “ECE511 Psychophysics” test the game and provide the necessary feedback through an online survey tool. These students are diverse to the extent that they come from many departments on campus and approximately 50% are international students. From both a multicultural and demographic perspective, I believe a game designed for these students will engage them in ways that have previously been either neglected marginally beneficial. To the extent possible, I will also publicize this game to my colleagues and I hope that many will find the finished product useful in helping their own graduate students.

Thanks to the University of Florida for inviting Purdue to participate in this creative and valuable endeavor. This proposal has our strongest support.

With best regards,

Hong Z. Tan
2/18/2010

National Science Foundation
Ethics Education in Science and Engineering Program
4201 Wilson Blvd.
Arlington, VA 22230

Dear Review Panelist,

As a faculty member in the Electrical and Computer Engineering department of Rowan University, I would like to confirm my commitment to participate in the University of Florida’s Gaming against Plagiarism educational game testing process with our undergraduate students. I am keenly aware of the challenges involved in training students about ethics and plagiarism. This gaming approach appears to be a viable solution to achieving a more informed and aware student body—especially in the STEM disciplines.

I have been teaching introduction to engineering courses to our incoming freshman for the past two years. Plagiarism and ethics are two big topics covered in those courses. Often times I feel that the resources we have are very limited, for instance, providing the plain text of definitions and case studies. Although we keep emphasizing these topics, we still see plagiarism and unethical behaviors occurring across the campus. That is why this proposal is of particular interest to me since it will allow me to see whether providing students with more interactive and engaging tools, such as games, promote their learning and eventually prevent any irresponsible and unethical conduct of study and research.

I plan to have my undergraduate students in Freshman Engineering Clinic I/II and a small pool of graduate students in my department test the game and provide the necessary feedback through an online survey tool. I believe a game designed for these students will engage them in ways that have previously been marginally beneficial.

I look forward to participating in this creative and valuable project. This proposal has my highest endorsement.

Best regards,

Ying (Gina) Tang, Ph.D
Associate Professor
Department of Electrical and Computer Engineering
Rowan University
Date: 02/16/2010

National Science Foundation
Ethics Education in Science and Engineering Program
4201 Wilson Blvd.
Arlington, VA 22230

Re: Proposal titled “Gaming Against Plagiarism” (NSF-EESE)

Dear Review Panelist,

This letter indicates the willingness of the University of Houston to participate in the research project “Gaming Against Plagiarism” (NSF-EESE) led by the University of Florida. The portion of the project to be conducted at the University of Houston will be under the direction of Dr. Xiaojing Yuan at the Engineering Technology Department.

The University of Houston is located at 4800 Calhoun Rd., Houston, TX 77204. It is the most ethnically diversified research extensive university in the nation. Houston, the nation’s fourth largest city is both an ethnically and a culturally diverse city that provides ample opportunities to educate both typical as well as atypical students. The College of Technology serves more than 7,000 students with more than 50% of students from minority or under-represented population. We believe ethic education, in which plagiarism is one important aspect, at both graduate and undergraduate level is critical in educating future engineering and technology workforce.

We are eager to partner with the University of Florida and will do all we can to prevent plagiarism – an important factor in engineering and technology ethics. Once the Game is successfully developed, we will try it out at both the undergraduate and graduate level following designated protocol.

Sincerely,

[Signature]

Xiaojing Yuan

Learning. Leading.