

## Department of Integrated Science and Technology Faculty Annual Report May 2017 to May 2018

*All responses go into tables and nearly all responses require that you put your name with each entry. This greatly facilitates the compiling of the information into a department summary for the annual report. All entries should be in **10 point type** to ensure uniformity when compiling. Additionally, accomplishments in a several categories needs to get called out in our departmental annual report. **Please add the following initials at the end of the row – or highlight with the appropriate color – to indicate the following:***

- **MC** = Madison Collaborative (anything you are doing that ties in to ethical reasoning in action)
- **EL** = Engaged Learning/Teaching (study abroad/away, hands-on activities, etc....this also includes capstones, theses, etc. but *no need to indicate this separately in Section I.D.*, since it will all be Engaged Teaching/Learning)
- **CE** = Community Engagement (working with community partners at the local, state, national, regional, or international level)
- **VE** = Civic Engagement (anything outside the classroom related to citizenship, public policy, etc.)
- **Diversity** (including diversity-related outreach, Study Group, etc.)
- **NW** = Newsworthy accomplishment use this to call my attention to something that you think is exceptional in the sense that it would be worth highlighting in the departmental and/or college report.

### I. TEACHING

A. **Classes Taught.** List all courses and sections taught (not including capstones, independent studies, theses, etc.) during the past academic year. If team taught, please indicate lead.

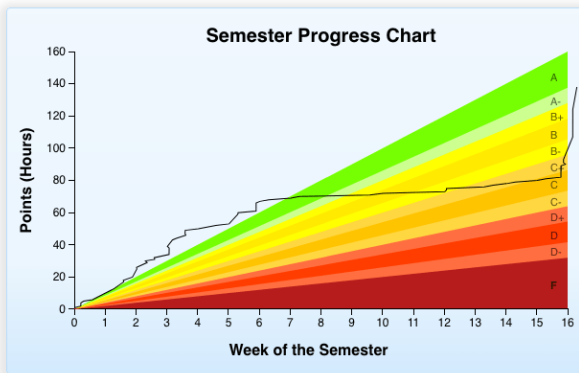
| Fall Semester                                       |           |            |             |
|---|-----------|------------|-------------|
| Course designator, number and title                 | Section # | Enrollment | Team (lead) |
| ISAT 340  | 1         | 15         |             |
| ISAT 345  | 1         | 24         |             |
| ISAT 348  | 1         | 24         |             |
| Spring Semester                                     |           |            |             |
| ISAT 252  | 1         | 26         |             |
| ISAT 252  | 2         | 27         |             |
| ISAT 440 <b>MC EL</b>                               | 1         | 7          |             |
| ISAT 480—Blockchain and Cryptocurrency <b>NW EL</b> | 4         | 32         | Radziwill   |

B. **Significant contributions.** Describe any significant teaching contributions related to these courses (include development of new courses, substantive revisions in content, new instructional techniques, breadth of teaching expertise and subject areas, teaching in other departments, etc.). Include instructional leadership, such as initiating and/or executing constructive curricular change. Please do NOT include course improvements, which should go in I.C. Put your name in the left hand cell and the information in the right hand cell of the table.

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| Benton | At the request of the JMU X-Labs, Dr. Radziwill and I created and taught a full-semester course in “Blockchain and Cryptocurrency.” This work was highlighted at the <a href="#">JMU X-Labs Innovation Summit</a> on 4/27/18. We expect to release a textbook that was co-written with the students over the course of the summer. As word got out about this class, I was asked to speak <b>twice</b> at Shenandoah Valley Technology Council monthly meetings, I was <a href="#">interviewed for the Daily News Record</a> , for <a href="#">WHSV</a> , and also for <a href="#">JMU alum Chiedo John’s weekly video</a> . <b>NW EL</b> |
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|  | For ISAT 440, Social Issues in Computing, two students co-authored a paper with me that ended up being published in the <i>Software Quality Professional</i> journal. The title of the paper is "Blockchain for Supply Chain: Improving Transparency and Efficiency Simultaneously." The student co-authors were Austin Purritano and Cole Gerhart. It should be published in the June 2018 issue of SQP. The course and the article address ethical issues that come up in computing and software. <b>MC EL</b> |
|--|--|

**C. Course improvement.** List significant changes to course design or delivery that you have made during the past academic year. Please indicate if these directly resulted from feedback from students (*via* evaluations or otherwise) or colleagues. Put your name in the left hand cell and the information in the right hand cell of the table.

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| Benton | <p>For ISAT 252, in the Spring 2017 semester, I implemented a learning management system based on WordPress that helped students track their progress through the semester with a personalized chart that looked like the following. Please note that the data in the chart is unique to each student, and that the chart is available ALL semester and dynamically changes as students complete assignments. It is designed specifically to allow them to monitor and stay on top of their progress.</p>  <p>However, the chart for most students last spring (2017) indicated that they started off strong, then plateaued, then tried to scramble at the end of the semester to get caught up from procrastinating. In order to help students this spring (2018) overcome the temptation to procrastinate, I showed them this chart, warned them about what had happened last year, and also implemented a cap on the total maximum points any student could earn in a single week. This was designed to make it impossible for students to put work off until the end of the semester. This change was partially successful.</p> <p>The key challenge for students appears to be assignments that are only partially specified. If an assignment is tightly specified, to the point that there is no choice or ambiguity for students, they perform well enough. However, if there is any flexibility or openness in how and when students accomplish tasks related to an assignment, many, if not most, of them fall prey to procrastination and indecision. The answer to this is NOT to specify assignments more tightly. That is not a good preparation for a world which gives them loosely/vaguely defined parameters and asks them to do good things. I believe the answer lies in giving them more opportunities to practice and to fail safely. This requires program-wide collaboration to be successful, however.</p> |
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**D. Independent study, capstone, thesis, etc. guidance,** including student research not associated with a formal course. If the work was shared beyond JMU, please indicate in what form (paper, poster, etc. and at what venue).

| Fall                   |                 |   |                        |
|------------------------|-----------------|---|------------------------|
| Course and Topic Title | Student Name    | Topic Area or Project Name                            | Shared Outside of JMU? |
| ISAT 493               | Akram Abdou     | Presence: A Social Network for 360° Photos and Videos | Yes (>\$50K funding)   |
| ISAT 493               | Jeb Benedetti   | Dialoggr: Physician Portal for Type 1 Diabetes Mgmt.  |                        |
| //                     | Jonathan Bonham | //  |                        |

| Spring   |                  |  |                                |
|----------|------------------|--|--------------------------------|
| ISAT 493 | Ryan Nangle      | Dialoggr: Predicting Blood Glucose Levels for Type 1 |                                |
| "        | Austin Purritano | Diabetics with Machine Learning                      |                                |
| "        | Thomas Driver    | JunoVR: Prototyping and Building a Bluetooth Breath  | Yes, Outside sponsor is JunoVR |
| "        | Brandon Perry    | Sensor for Use with VR Applications                  |                                |
| "        | Stephen Campbell | Madison Conservation Corps: Building a Mobile App to |                                |
| "        | Curtis Cox       | Perform Free Home Energy Audits                      |                                |
| "        | Brenna Ellison   | JMScoop: A Progressive Web Application (PWA)         |                                |
| "        | Cole Gerhart     | Designed to Foster Ride-Sharing within the JMU       |                                |
| "        | Hanna Walsh      | Community  |                                |
| "        | Luke Wilbur      |  |                                |
| ISAT 491 | Micauly Torrey   | Madison Conservation Corps: Building a JMU Student   |                                |
|          | Joe Timmins      | Organization to do Free Home Energy Audits           |                                |

**E. Student projects, accomplishments, etc.** Discuss the significance of these student independent study/research contributions. Put your name in the left hand cell and the information in the right hand cell of the table.

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| Benton | <p>Overall, I mentored 15 students this year involved in 7 different projects. Two projects were presented at the Fall ISAT Symposium. Four projects were presented in the Spring. One project presented a poster at the Spring Symposium. All of the ISAT 493 students took 492 with me in the Fall. Technically, I had enough students that this could have counted as a full course toward my load (although it did not).</p> <p>Akram Abdou's project, entirely on his own initiative, became a start-up with close to \$100,000 in funding, office space, and multiple employees. He won a spot in the JMU Center for Entrepreneurship's Venture Creation Fellowship during the summer of 2017. I provided technical leadership as well as was instrumental in helping the team obtain office space. <b>NW EL</b></p> <p>As a result of our work together Tommy Driver has also won a spot in the JMU Center for Entrepreneurship's Venture Creation Fellowship for this coming summer (2018). I'm very proud to be building a track record for turning out students with strong aptitude for entrepreneurship. <b>EL</b></p> <p>I'm also very proud, yet again, of the poster developed by my 491 students. I think their poster stands out from their peers' posters in its ability to truly take advantage of the medium, i.e. a poster, to further the aims of the project, i.e. to recruit students to follow in their footsteps.</p> <p>Finally, I expect to publish at least 1-2 journal articles with the students who have just finished their capstones based on their capstone research. Their papers will appear in journals that feature machine learning research, and possibly new technology for health promotion.</p> |
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**F. Advising, non-class teaching, and student interaction/support outside of class.**

| Activity (advising, instruction, letter, etc.)                        | # of students | Team (lead) |
|---|---------------|-------------|
| JMU X-Labs Pop-Up course in LED programming, Fall 2017                | 20            |             |
| Professional Reference (via letters and phone calls)                  | 5             |             |
| "Caffinator" Coffee with students for class credit                    | 20            |             |
| 2-Weeks Visiting Lecturer in Dr. Pappas' ISAT 160 and 480 Spring 2018 | 300?          | Pappas      |
| ISAT 490 Breakout Sessions  | 40            |             |

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| II. SCHOLARLY ACTIVITY AND PROFESSIONAL DEVELOPMENT |
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- A. **Grant applications submitted.** Put all submitted and newly funded grants here. Provide complete information. The “life of grant” should give beginning and end dates. Co-PIs in other departments at JMU should include the name of their respective departments; co-PIs from other institutions should list their institutions. Please use an asterisk\* to denote funded grants or a plus+ to denote pending grants; unfunded grants need no marking.

| PI     | Co-PI | Grant Title                         | Agency      | Life of Grant | 1 <sup>st</sup> Year Amt | Total Request<br>* or + |
|--------|-------|-------------------------------------|-------------|---------------|--------------------------|-------------------------|
| Benton |       | Provost's Faculty Grant—EPIC Office | JMU Provost | Sp2018        | \$2,300                  | \$2,300*                |

- B. **Ongoing Grants.** List here all multi-year grants that are in their second or subsequent years. Here, “single year amt” refers the amount for the current year.

| PI     | Co-PI | Grant Title           | Agency         | Life of Grant | Single Year Amt | Total Amt |
|--------|-------|-----------------------|----------------|---------------|-----------------|-----------|
| Benton |       | CyberRange Course Dev | VA Cyber Range | 2017-18       | \$2,500         | \$5,000*  |

- C. **Publications.** Asterisk\* any student authors. Use a plus+ to indicate that a journal is peer reviewed.

| Authors*                                | Title  | Journal or Book /Volume/ Page+           | Year |
|---|--|--|------|
| Benton, Radziwill                       | Quality and Innovation with Blockchain Technology                                      | Software Quality Professional+           | 2017 |
| Benton, Radziwill, Purritano*, Gerhart* | Blockchain for Supply Chain: Improving Transparency and Efficiency Simultaneously      | Software Quality Professional+           | 2018 |
| Benton                                  | Book Review: The Knowledge Illusion  | Software Quality Professional+           | 2017 |
| Benton, Radziwill                       | Designing Personal Sustainability into Organizational Culture: The Case of burning Man | The Palgrave Handbook of Sustainability+ | 2018 |

- D. **Manuscripts submitted/in revision/in press** Asterisk\* any student authors. Use a plus+ to indicate that a journal is peer reviewed.

| Authors*                              | Title  | Journal+                                 | Review, revision, in press | Date Submitted |
|---------------------------------------|--|--|----------------------------|----------------|
| Radziwill, Benton, ISAT 480 Students* | Blockchain for Beginners   | Textbook to be published by Lapis Lucera | In revision                | TBD            |
| Radziwill, Benton                     | Design for X (DfX) in the Internet of Things (IoT)                                 | arXiv preprint 1704.04579                |                            |                |
| Radziwill, Benton                     | Cybersecurity Cost of Quality: Managing the Costs of Cybersecurity Risk Management | arXiv preprint 1707.02653                |                            |                |

- E. **Scholarly presentations.** List all presentations given, both on and off campus. Under the “Meeting/Venue” heading indicate either the meeting (full meeting name and location) or the on-campus function (give specific class, event or symposium). Indicate whether you, your student or collaborator presented the paper in each case by **putting the presenter's name in bold**. Asterisk\* any student presenters.

| Presenters*         | Title   | Meeting/Venue         | Date    |
|---------------------|---|-----------------------|---------|
| Nangle*, Purritano* | Dialoggr 3: Tracking Physical Activity and Modeling BGL | ISAT Senior Symposium | 4/20/18 |

|                                     |   |                              |          |
|-------------------------------------|---|------------------------------|----------|
| Driver*, Perry*                     | JunoVR: Improving a Breath Sensor for Virtual Reality (VR) Applications | ISAT Senior Symposium        | 4/20/18  |
| Campbell*, Cox*                     | Madison Conservation Corps—Auditing the World One Home at a Time        | ISAT Senior Symposium        | 4/20/18  |
| Ellison*, Gerhart*, Walsh*, Wilbur* | JMUScoop: A PWA to Promote Ridesharing at JMU                           | ISAT Senior Symposium        | 4/20/18  |
| Abdou*                              | Presence: A Social Network for 360° Photos and Videos                   | ISAT Senior Symposium        | 12/13/17 |
| Benedetti*, Bonham*                 | Dialoggr 2: A Web Portal for Physicians of Type 1 Diabetics             | ISAT Senior Symposium        | 12/13/17 |
| ISAT 480 Students*                  | Blockchain for Beginners  | JMU X-Labs Innovation Summit | 4/27/18  |
|                                     |   |                              |          |

F. **Invited presentations.** List all presentations given, both on- and off-campus. Presentations given to school groups or to general audiences should be listed under Service to the Community (section IIIC). Under the “Meeting/Venue” heading indicate either the meeting (full name and location) or the on-campus function (class, event, etc.). Indicate whether you, your student or collaborator presented the paper in each case by **putting the presenter’s name in bold**. Asterisk\* any student presenters.

| Presenters*                 | Title  | Meeting/Venue   | Date     |
|-----------------------------|--|---|----------|
| Benton                      | Passenger: A Mobile App to Prevent Weather-Related Auto Accidents                              | Samsung Developers Conference, Moscone Center, San Francisco, CA              | 10/17/17 |
| Benton                      | Introduction to Blockchain and Cryptocurrency  | Shenandoah Valley Technology Council, Harrisonburg, VA                        | 1/25/18  |
| Benton                      | Blockchain: A Technological Deep Dive  | Shenandoah Valley Technology Council, Harrisonburg, VA                        | 3/1/18   |
| <b>Benton,</b><br>Radziwill | Cryptocurrencies & Blockchain: A Recipe for Disruptive Innovation in Quality and Supply Chains | ASQ World Conference, Seattle, WA   | 5/1/18   |
| <b>Benton,</b><br>Radziwill | Cryptocurrencies & Blockchain: A Recipe for Disruptive Innovation in Quality and Supply Chains | ASQ Washington DC and Maryland Metro Section 509 General Meeting, Potomac, MD | 5/10/18  |
| <b>Benton,</b><br>Radziwill | The Burning Mind Project   | Burning Man Education Symposium, San Francisco, CA                            | 11/7/17  |
| <b>Benton,</b><br>Radziwill | Cryptocurrencies & Blockchain: A Recipe for Disruptive Innovation in Quality and Supply Chains | ASQ Innovation Division Webinar   | 6/1/18   |

G. **Conferences Attended.** Make entries here if either you or your student(s) or both attended a conference or collaboration meeting.

| Faculty name | Conference Title                             | Date     |
|--------------|--|----------|
| Benton       | Samsung Developers Conference                | Oct 2017 |
| Benton       | Burning Man Education Symposium              | Nov 2017 |
| Benton       | Internet of Things Conference, Malmö, Sweden | Apr 2018 |
| Benton       | ASQ World Conference                         | May 2018 |

H. **Professional Workshop/Short Course Participation.**

| Faculty name | Role Participant/Leader | Workshop/Short Course                           | Location & Dates       |
|--------------|-------------------------|---|------------------------|
| Benton       | Participant             | AWESOME Interdisciplinary Collaborations at JMU | The Hideaway, 1/18/18  |
| Benton       | Participant             | AWESOME: The Remix                              | Studio Center, 2/20/18 |

**I. Membership in Professional Organizations.** Please give the full organization name, not just the abbreviation or acronym.

| Faculty name | Organization          | Office Held |
|--------------|-----------------------|-------------|
| Benton       | IEEE Computer Society |             |
| Benton       | ACM                   |             |

**J. Scholarly projects.** List work in your area of professional expertise. These might include projects for non-profit or government organizations, for businesses, for JMU, or for some other entity.

| Faculty name | Project title or tagline | Sponsor | Brief description |
|--------------|--------------------------|---------|-------------------|
|              |                          |         |                   |
|              |                          |         |                   |
|              |                          |         |                   |

**K. Honors and Special Recognition Received.**

| Faculty name | Honor /Award                                   | Honoring Organization             | Date     |
|--------------|--|-----------------------------------|----------|
| Benton       | Runner Up: Weather Channel/Samsung Hack-a-thon | The Weather Channel, IBM, Samsung | Oct 2017 |

**L. Review work for publication or conferences.** N/A**M. Reviewing Proposals for funding agencies.** N/A**N. Professional Consulting.** List any consulting related to your area(s) of expertise, whether paid or unpaid.

| Faculty name | Company or Organization | Brief description of work   |
|--------------|-------------------------|-----------------------------|
| Benton       | Inbound Found           | Web development             |
| Benton       | Morphatic               | Web hosting and development |

**O. Ongoing, unpublished scholarly activity or other significant contributions.** List any other scholarly achievements that you feel are significant but do not fit into the above categories. For example, indicate contributions to funded research for which you are not listed as a PI or co-PI or patents granted. If you organized a conference or workshop, please list it here. Put your name in the left hand cell and the information in the right hand cell.

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**P. Exceptional or Especially Noteworthy Scholarly Activities.** Briefly discuss scholarly achievements that you think are particularly noteworthy, either for you as a scholar or for your contribution to your field. Put your name in the left hand cell and the information in the right hand cell.

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|  | See my narrative in Section V.B. |
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| III. PROFESSIONAL SERVICE |
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- A. **Service to the University, College, and Department (including programs).** List the name of the committee chair and indicate the level of the committee. Your name will appear twice if you are the chair of the committee. Please list any student group/club advising in the second table, not the first.

| Faculty name | Committee or Group                         | Chairperson name | Level |      |     |
|--------------|--|------------------|-------|------|-----|
|              |  |                  | Dept  | CISE | JMU |
| Benton       | Assessment Committee                       | Benton           | X     |      |     |
| Benton       | Student Evaluation of Teaching Task Force  | Pappas/Benton    | X     |      |     |
| Benton       | Foundations Redesign Committee             | Brodrick-Hartman | X     |      |     |
| Benton       | IKM Team                                   | Benton           | X     |      |     |
| Benton       | Social Context Team                        | Conley           | X     |      |     |
| Benton       | CISE IT Committee                          | Griffith         |       | X    |     |
| Benton       | JMU Faculty Senate                         | Audrey Burnett   | X     |      | X   |
| Benton       | Faculty Senate Academic Policies Committee | Benton           | X     |      | X   |
| Benton       | IT Program Exploratory Committee           | Sharon Simmons   |       | X    |     |
| Benton       | ABET Review Committee                      | Radziwill        | X     |      |     |

| Faculty name | Student Club or Organization               |
|--------------|--|
| Benton       | Japanese Language and Culture Club Sponsor |

- B. **Service to your professional community.**

| Faculty name | Organization                                    | Committee and/or Role                              |
|--------------|---|--|
| Benton       | Hyperledger Teaching and Training Working Group | Scribe   |
| Benton       | ASQ Innovation Division                         | Organized/Built Sensory Booth for World Conference |

- C. **Service to the community.**

| Faculty name | Organization                       | Role  |
|--------------|------------------------------------|-------|
| Benton       | Shenandoah Valley Children's Choir | Usher |

- D. **Exceptional contributions.**

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| Benton | <p><b>Faculty Senate Academic Policies Committee</b></p> <p>Over the years, APC has been mostly a <i>reactive</i> body, i.e. they only responded to incoming issues, and did not take leadership to promote an agenda supportive of JMU's Academic Mission. This year, I led the APC to adopt an annual plan to create a substantive whitepaper intended to push JMU to make positive changes in our academic culture. The first project will focus on the use of student evaluations of teaching in faculty performance appraisal. This is VERY uneven across the university with unhealthy ramifications.</p> <p><b>Assessment + ABET + Foundations Redesign + IT Program Exploratory + APC Committees</b></p> <p>I have done, and continue to do, a <i>tremendous</i> amount of service that I am asked to do in recognition of my reputation for <b>expertise in assessment and pedagogical design</b>. Across these committees I strive to make sure that JMU's progressive values remain in focus. Specifically, JMU needs to keep a sustained focus on creating a diverse, safe, and welcoming culture and atmosphere for both students and faculty both in and out of the classroom. The demand for my service on these committees stems in large part from my reputation as an excellent teacher. My primary priorities for this year and the coming year:</p> <ul style="list-style-type: none"> <li>• Creating a healthy culture around student evaluations</li> <li>• (Re-)Designing programs in CISE that will attract and retain a more diverse student body, in particular, to work toward parity in gender representation in CISE degree programs</li> <li>• Making JMU a <i>safe</i> place for faculty and students to be innovative</li> </ul> |
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|  | <b>Assessment</b><br>I have been the primary organizer of both Assessment Day focus groups for all programs within ISAT, and also the trainer and organizer for the collection and processing of all BSISAT videos that have been taken for the Senior Symposium. This is an extraordinarily time-consuming set of tasks, and our annual assessment activities would not be possible without them, particularly the ongoing assessment of the Spine and Habits-of-Mind. |
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E. **Administrative role.** N/A

F. **Other professional service.** List here anything that does not fit into any of the above categories, including initiating and carrying out a program which leads to a significant increase in ISAT departmental or JMU resources, or in ISAT's or JMU's ability to perform its mission. Explain why these are noteworthy and how they impact your scholarship, teaching or service. Put your name in the left hand cell and the information in the right hand cell of the table.

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| Benton | <p>I want to call attention to the sheer volume of effort that I put into ISAT capstone projects. This year alone, I mentored 7 projects totaling 13 seniors and 2 juniors. I easily devote more time to this than I would to a single course. Coupled with the extra effort that went into creating and delivering the Blockchain course in the X-Labs, I am providing an enormous amount of educational leadership.</p> <p>Although I didn't teach the course this semester, I have been an active member of the Fueled Teaching Team. The JMU Fueled Food Truck is a living-learning lab on campus that represents a collaboration across many departments as well as Aramark and the JMU administration. I have helped recruit faculty and shape the curriculum and successful activities that have taken place with respect to Fueled. It is one of the highlights of JMU's efforts to become the national model of the engaged university.</p> |
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| IV. THIS YEAR'S MAJOR ACCOMPLISHMENT |
|--------------------------------------|

Indicate what you feel is your single most significant accomplishment this year. Explain why it is particularly important to you, your students or the department. Describe how it has or will impact your scholarship, teaching or service. If you expect this accomplishment to have a continuing impact and appear in your anticipated activities report, note this and explain. If this will have a broader impact on the department, discuss this. Put your name in the left hand cell and the information in the right hand cell of the table.

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| Benton | My most significant accomplishment is my efforts to become a known expert in the blockchain space. See section V.B. below (Scholarship). |
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| V. Self-Reflection |
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Please spend a little time to reflect upon your professional performance during the past year. Write up a short essay (no more than one page, please...one good paragraph is sufficient) **for each of the following four areas.** Please include specifics as well as a general overview. Include highlights,



lowlights, ongoing challenges, or other meaningful commentary. The goal is for you to reflect on your professional experiences during the past year.

#### A. Teaching

Being in the classroom feeds my soul more than anything else that I do in this job. Put simply, I love and cherish the opportunity to explore new ground and cover new territory with students. I'm deeply rewarded merely by having the opportunity to make a significant impact on the direction of their lives. Frankly, if it weren't for my interactions with students, I don't know if I could continue this job. This year has been no exception. Here are some of the accomplishments I'm proud of:

- I was able to provide support to a number of students dealing with intensely difficult extracurricular events in their lives. I'm honored that they chose to share these personal challenges with me and that I was able to come up with creative ways to help keep their educational careers on a solid trajectory. Here is a small sample of ways that I felt I was able to make a meaningful impact in students' lives:
  - One student's house burned down in the middle of the year, yet we were able to complete his capstone on time and with flying colors
  - Another student's father's cancer came back. She is a perfectionist and over-achiever, and I was able to help her prioritize her time with her family without feeling guilty about the time she had to give up working on her capstone
  - Another student's uncle died. As a result, his grandparents' health plummeted and he was left being largely responsible for supporting them both physically and financially. His response to this was to keep everything a secret from his professors, which caused resentment because they didn't know why he had disappeared from their classes. I was finally able to get him to open up to me and begin learning to trust that the people in his life truly had his best interests at heart. His intense privacy could have been a major stumbling block in his professional career, and we've begun work at mitigating that.
  - A senior chemistry major who took my introductory programming class as an elective wasn't able to devote as much time to it as he would have liked. Rather than just failing him, I was able to recognize his talent and passion, and we are now working together to develop new, open-source, computational chemistry software that we will hopefully be able to publish. I had the opportunity to turn a potentially demotivating experience into something that might end up benefitting all of us.
- I'm very happy with the way that my Software Engineering course (ISAT 345) went this past fall. This was the 3<sup>rd</sup> time I've taught the course, and the student response has been strong. They report that the skills are highly relevant to the interview processes they're concurrently involved in (they're mostly seniors in the job market). Attendance and participation is extremely high and students seem willing to take ownership of the course content.
- I made new tweaks to the software I developed to manage all of my courses. While it is still a work in progress, I feel like I'm getting closer to having a system that allows me to quickly get to know students, triage my efforts, and spend my time where it is most impactful, while not sacrificing other students' opportunity to get a full experience. Specifically this year, I used a self-monitoring system coupled with a course policy on the pace with which students must turn in work to foster a sustained (and sustainable) rhythm to student work over the course of the semester.

Not everything is so rosy, however. I'm afraid of my colleagues. I don't feel safe. I don't know whom I can trust. I was *severely* chastised for my most innovative work in the responses to my application for promotion this year. This has made me anxious, depressed, and has taken a serious toll on the amount of energy I'm able to expend on my classes. As a result, I feel increasingly tempted to perceive students in a negative light. I feel like I'm gradually falling into the trap of becoming the jaded senior professor who drags his students to content by force (i.e. grades) rather than helping them build their own motivation through passion, autonomy, and self-assurance. I feel like I'm caught in this limbo where I can't really practice my craft in the way that I know is best, and am stuck trying to mix the conventional/traditional practices my colleagues expect with the evidence published on how people best learn and are motivated. I feel like my anxiety and lack of passion for this approach creates a self-fulfilling prophecy in which students disappoint themselves and me, which leads me to be more jaded toward them. The tension is becoming unbearable. I really need to find a way out of this soon or I will not feel good about the ways that I am serving students. It's pathetically easy to blame students. I hear myself and my colleagues do it all the time. That is the lazy way out. We professors have all the power. We hold all the cards. Students should absolutely not be blamed for how they respond to the mostly meaningless hoops we make them jump through.

I guess the most depressing part is that I know I have to convince my colleagues to come closer to seeing things the way that I do before I'll feel free to practice my craft in the way that I feel is most responsible. After twelve years in ISAT, I kind of feel like I've hit a wall of apathy, and lack of curiosity. Although ISAT talks a good game about being "innovative," I don't really think most people in the department really care, or perhaps even know what that means.

## B. Scholarship

I am **VERY** pleased by my accomplishments in scholarship this year. Most notably:

- I've begun building a strong reputation for expertise in the **blockchain** space. Specifically, I've:
  - Published two refereed journal papers on blockchain
  - Given six invited lectures/talks at both the local (SVTC), regional (ASQ), and international (ASQ) levels, as well as being a guest on a podcast on the topic
  - Been interviewed for both local newspaper (DNR) and TV (WHSV)
  - Developed and taught a full-semester course on the topic
  - Nearly finished a textbook written in collaboration with my co-instructor, Dr. Radziwill, and the students of my blockchain course
  - Become a respected, contributing member of the Hyperledger Teaching and Education Working Group, an international committee convened to promote open-source blockchain solutions
- I mentored 6 senior capstone projects, 4 of which were the 2<sup>nd</sup> or 3<sup>rd</sup> consecutive team to work on that project. I feel I'm really demonstrating the power of the new 4-semester capstone sequence to foster longer-term, more sustainable approaches to capstone work
- I published one refereed journal article that was co-authored with students, and I have drafts that could lead to 2-3 more papers co-authored with students.

## C. Service

Service is a bittersweet topic. On the one hand, I'm really pleased with the opportunities I've been given to devote my time and energy to tasks for which I'm extremely well-qualified and well-suited, namely the *development of curriculum and pedagogy across the university*. I'm gratified that my talent and expertise in these areas has been recognized by my colleagues at JMU; that I've been recognized as a person to whom one would naturally turn to work on such areas. More specifically, I've really appreciated the chance to:

- Lead the JMU Faculty Senate's Academic Policies Committee (APC) in a proactive effort to effect change in the University's academic culture. I'm proud of having led this group to take on the task of writing an annual whitepaper that explores and examines in depth one issue of key relevance to the quality of teaching and learning at JMU. I'm excited that the APC will spend next year taking a deep dive into the impacts of student evaluations of teaching (SET) and the ways that they help and hinder our academic culture.
- Lead the ISAT SET Task Force in the development of a new SET instrument for ISAT. While we have developed a new instrument, there still remains the enormous task of creating policy and culture around this instrument so that it drives out fear, and truly supports innovative, reflective, evidence-based practice within our programs that comports with our departmental values.
- Collaborate with the BSISAT Foundations Redesign Committee in creating an evidence-based curriculum that reflects our values and better serves our students. This process has uncovered long-standing, deep philosophical and personal differences (and some resentments) amongst our faculty. While this project has put enormous effort into documenting both our current and historical practice and also capturing the thoughts, beliefs, and feelings of our faculty, the hard part is still to come. Developing a truly exceptional program will require efforts toward reconciliation for which I'm not sure we possess either the stomach or the leadership. In any case, I'm grateful to have worked with an open-minded, honest, and hard-working group of individuals on this task.
- Begin designing and envisioning a potential Information Technology (IT) Degree Program for CISE and JMU. Again, I see an opportunity to shape a unique and radically engaging learning experience for students that could bring national or international recognition to JMU. I'm not sure that the IT Program Exploratory Committee, as now constituted, represents the most fertile soil for such a project, but I'm very glad to have been asked to participate and I hope to earn the opportunity to take this project all the way. To be honest, I see this as a potential opportunity to escape the nay-sayers and more conservative elements that I believe are holding the BSISAT program back from reaching its full potential.

The common thread for all of these programs is the opportunity to use my talents and expertise at program design, evidence-based pedagogy, and sensitivity for creating cultures that are safe and supportive for the students that experience them.

However, at the same time I've been happy to have the chance to work on these things, I'm hurt, angry, and pessimistic about the chance that my ideas will have a true chance to flourish both within ISAT and at JMU. More specifically:

- I'm devastated that the ISAT faculty did not re-elect me for my position on the Senate when I felt I made it clear to them that I was in the middle of a multi-year project that was just beginning to bear fruit. I'm angry at David for choosing to run against me when he knew this was the case. I was particularly upset to learn that David still had plenty of

opportunities to be a part of faculty governance via a number of high-level University committees upon which he still sits. In light of that, his decision to oppose me in the elections comes across as selfish and just plain mean. I fear I will really struggle to maintain the momentum of the APC project while it is still in its infancy without the positional authority of having been the committee's elected chair.

- I'm utterly chagrined at the effort of the PAC to formalize the practice of unilaterally retrieving the student evaluations of faculty under consideration for promotion and tenure. The whole reason we chose to revamp our SET instrument was that the old instrument was largely seen as invalid and unhelpful in promoting a culture of reflective, evidence-based practice in the evolution of our teaching. Taking control away from faculty who are working to create a niche for themselves in a broad and diverse faculty will do nothing but engender fear and promote defensive, regressive behavior. It will sabotage our efforts to turn the SET instrument into a tool for self-reflection and self-improvement.
- I'm highly skeptical that there is sufficient leadership to take the Foundations Redesign Committee's efforts seriously and do the work necessary to re-forge the bonds of trust and communal effort that once existed amongst the BSISAT faculty. **It all starts with trust**, and that, I fear, is a resource of which we have precious little in our department.
- I'm afraid that CISE will not grasp the opportunity that the IT Program presents and will reflexively resort to an uninspiring, conventional formulation of courses that will fail to evolve into the truly ground-breaking program I know that it can become.

Most painful, of course, is having been chosen to take on so many tasks that speak to my excellence as a teacher, only to have the same leadership that chose me tell me that I am "not excellent" in teaching when it came to my application for promotion. I remain deeply furious and insulted by this. It is not the kind of environment where I'd like to continue to contribute my talents.

#### D. Advancement of [Departmental Values](#)

It has taken every ounce of my being to maintain a minimal level of collegiality this year. ***I am devastated and deeply wounded*** by the PAC/AUH decisions to reject my application for promotion. At this point, I think the "departmental values" are kind of a cruel joke designed to make people feel hopeful, but then to make us feel like someone has spit in our faces and punched us in the gut. Even though I have been engaged in weekly counseling with a licensed therapist, the energy I've had to expend to hold my anger in has destroyed my health. I've gained about 50 pounds since November, and even though I had finally managed to quit smoking after 7 years, the stress of having to come in to ISAT has led me to fall off the wagon. I consider the fact that I haven't caused any sort of scene a major accomplishment.

#### Departmental Feedback

Other than hiring a new AUH, what do you feel we have accomplished, as a Department, in 2017-2018?

Mostly squandered opportunities, for example, to have a serious conversation about what we'd like our new space to be. We failed to make any progress ***implementing*** the departmental values we developed last year.

What should our priorities be for improvement, as a Department/School, for 2018-2019?

**We must FINALLY get serious about becoming a safe, collegial place where people will enjoy working!!!** We currently have a toxic atmosphere where people cannot feel safe to innovate. Bad actors are continually allowed to get away with being bullies. I had a casual conversation with Keith Holland after his interview for the ISAT AUH role and he told me that people came out of the woodwork to share grievances with him about other faculty going back DECADES! For too long we have suffered without leadership willing to tackle these problems head-on in a constructive fashion. Creating a departmental value statement is a good first step, but that's the easy part. The lack of creativity, willpower, and (dare I say it) **spine** to take on the significant challenges is lethal to morale. There's no way around the fact that the department is a powder-keg waiting to explode. It's time to finally stop ignoring and exacerbating the problems. I have been raising these issues in my FAR/FAAP nearly every year for the past 12 years and there has never been more than a half-assed (at best) effort to address the many, many, many issues that we have ignored and pushed under the rug.

Suggested Discussion Topics for the August 2018 Summit:

The department needs to devote considerable resources towards some sort of "truth and reconciliation" process. There are deep wounds, resentments, anger, fear going back decades among the faculty. As a survival mechanism, the faculty have developed the ability to create a strong veneer of collegiality. This veneer masks the depths of dysfunction that are the norm in departmental decision-making. Unless, and until we are able to address and resolve the hidden dysfunction, ISAT will not be able to fully realize its potential to contribute to our University vision: to become the national model of the engaged university. **We need a plan to heal old (and not-so-old) wounds.** The development of our departmental value statement was a good first step, but the absolute failure to implement that statement in any meaningful fashion is emblematic of the weak and feckless "leadership" we've endured for so long. We have to end the practice of rewarding and accommodating bullies. We need a clearly defined, well-implemented policy and practice for resolving disputes. We need transparency of decision-making. We need an intentional culture that drives out fear and truly supports innovation.

I'm obviously very passionate about finding solutions to the problems I'm describing. I'm absolutely willing to contribute my time and energy to devising and implementing solutions. I'm tired of calling out bad behavior and getting a hand-wringing there's-nothing-we-can-do response. I'm tired of challenging what I perceive to be unwise decisions and getting a "don't worry about it—that's above your pay grade" response. I'm tired of working my ass off to implement innovative pedagogy and then being punished for it. I want to feel safe. I want to feel inspired. I want to work in a department into which I can feel that I can pour my body and soul in service to students, to education, to working towards solutions to the major problems facing our world. That's what we should talk about at the August Summit.

## **Faculty Anticipated Activities Plan For 2018 - 2019**

### **1. Teaching Activities**

Percentage of Load: 60%

Classes to be taught: ISAT 340, ISAT 345, ISAT 348, ISAT 480 (Blockchain), ISAT 492/493

Other discussion: There is a strong possibility that I will be on Academic Leave in the Spring 2019 semester

### **2. Professional Service Activities**

Percentage of Load: 10%

Department committees, roles, rough effort levels (hours/month):

- SET Task Force, Co-Chair (2-3)
- Foundations Redesign Committee, Member (6-8)
- Assessment Committee, Chair (3-4)

College committees, roles, rough effort levels (hours/month):

- IT Program Exploratory Committee, Member (10-12)
- CISE IT Committee, Member (<1)

University committees, roles, rough effort levels (hours/month):

- Faculty Senate Academic Policies Committee, Ex-Officio member, (4-6)

External committees, roles, rough effort levels (hours/month): N/A

Other (describe): Since I was not re-elected to represent ISAT in the JMU Faculty Senate, I will be re-focusing my efforts on specific projects for the committees that I have served in the past.

### **3. Scholarship and Professional Development Activities**

Percentage of Load: 30%

Projects or other efforts, roles, rough effort levels (hours/month): I plan to focus a lot more on publishing books and software this year. I've had enough time for a variety of ideas to marinate and now it is time to bring them to fruition. I anticipate being on Academic Leave in Spring 2019 and will devote considerable time and energy to those projects during that time.

Other (describe):

### **4. Other Activities**

Percentage of Load:

Description of Activities:

**Equipment Requests:** If there is a piece of equipment that you would like the Department to purchase, please list it below. (Note that writing it here does NOT mean that the Department will necessarily buy it!)