2. Summary statement by Dean:

TBD

3. Attach copy of up-to-date Specialist Position Description form.

4. Number of current advisees:	Freshmen	<u>0</u>
	Sophomores	<u>0</u>
	Juniors	<u>0</u>
	Seniors	<u>0</u>
	Other	<u>0</u>

5. Service on graduate/professional student guidance committees: (List number of students)

	Masters	Doctoral	Professional
Currently enrolled or active	<u>0</u>	<u>1</u>	<u>0</u>
Degrees Awarded - total of career	<u>0</u>	<u>0</u>	<u>0</u>

6. Provide a summary of accomplishments in academic advising (reference Academic Specialist Handbook - Appendix A: Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.5.1.1).

Not a significant proportion of the position.

7. Evaluation of academic advising by unit administrator. Include advising, recruitment and retention of students; evidence of a leadership role in the advising profession; evidence of commitment to and effectiveness in promoting diversity and intellectual honesty; summary of evidence of recognition by students, peers, faculty and others within and outside MSU.

Not a significant proportion of the position.

## **TEACHING ACTIVITIES IN CREDIT COURSES**

0. 11001	s. Record of teaching activities for the past three years .							
Term	Course Number	Credits	Type of Section	# of	Type of Participation (Teach, teach as			
and		(#,var)	(Lec,Rec, Lab,Pract)	Students	part of team, evaluate, demonstrate,			
Year					assist teacher, etc.)			
US14	ZOL 355	3	Lecture	68	Teach			
US14	ISB 202	3	Lecture	66	Teach			
FS14	UGS 200 H	3	Lecture/Research	7	Teach as part of team			
SS15	UGS 200 H	3	Lecture/Research	7	Teach as part of team			
SS15	ISE 420	3	Lecture	20	Teach as part of team			
US15	ISB 202	3	Lecture	70	Teach			
FS15	ISE 420	3	Lecture	12	Teach as part of team			
SS16	ISE 420	3	Lecture	23	Teach			
US16	ISB 202	3	Lecture	69	Teach			
FS16	ISE 420	3	Lecture	10	Teach			

8. Record of teaching activities for the past three years\*:

9. Provide a summary of accomplishments in teaching (reference Academic Specialist Handbook - Appendix A : Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.5.1.2).

I use my classroom as my pedagogical laboratory. Over the last three years, I have piloted educational technologies such as digital course packs, digital laboratory notebooks, and student feedback mechanisms in D2L - as a mechanism to improve student participation, reduce course costs, and increase peer/peer interaction. This focus on technology ensures that my face-to-face, hybrid, and online courses incorporate the most advanced technology available. This leveraging of technology for pedagogical purposes, has led to my receiving three MSU AT&T awards for best online – the latest in 2014. Beginning in 2014, I added two new courses, UGS 200H and ISE 420, to my repertoire and developed another new course (UGS 100) for MSU's Vice Provost for Undergraduate Education. In my time at MSU, I have developed seven unique courses, including four online, and modified an additional two courses already in existence. My commitment to active learning in all settings became evident during programmatic assessment for CISGS. My online course ranked higher in "deep learning" activities than any other face-to-face lecture course in the center as well as some of the laboratories. In general, I revise my courses iteratively as I reflect on my own experiences, evaluate student learning, and analyze research-based surveys collected from students. Name:

Some quotes from ISE 420:

- I've never had to think so hard on the different concepts that made up a particular subject.
- This class has taught me that there are several ways and methods in order to get to a solution and that in order to understand something you have to think about all of the different pathways before concluding/making conclusions.
- Walking into this class as an elementary education major with so many of my peers already having or currently pursuing hard science degrees was intimidating...but what exploring science and its processes in this class really taught me is that I am a scientist myself.

Some quotes from ISB 202:

- Great instructor learned a lot and have never had a class like this. I really enjoyed having the opportunity to give my own opinion and also make replies to other students.
- I came into this class with pretty low expectations I have taken numerous science classes in the past and I did not think I would learn anything. However, Professor **Constant** exceeded any expectations with the creative setup of this class. ... I was able to think about things I have already learned in new ways (for instance, comparing plate tectonics to Atlantis) and the class was very enjoyable, especially for an online course.
- It was a lot of fun. I greatly enjoyed the course
- LOVED THIS CLASS

Future Teaching Goals:

For my own classroom, I would like to continue my work on: 1) improving students' visual model based reasoning and 2) incorporating visuals into communicating concepts in science. I would also like to continue to work on a graduate course that trains graduate students to develop online or hybrid courses that can be piloted and offered in their home departments. This course could serve as a means of disseminating digital teaching strategies to departments as well as generating more revenue among departments.

\* In determining the "past three years" the candidate may elect to exclude any terms during which s/he was on leave.

# MSU-SPONSORED NON-CREDIT INSTRUCTIONAL ACTIVITIES/SCHOLARLY PRESENTATIONS

10. Record of MSU-sponsored non-credit instructional activities for the past three years\*:

Year	Type of Presentation (workshop, seminar, etc.)	# of Sessions	Target Audience	# of Participants	Type of Participation (Instruct/present, instruct/present as part of team,
		per Year			evaluate, demonstrate, etc.)
2015	Faculty Learning Community: College's Online Workgroup	8	Faculty	~15	Co-facilitator
2015	New Faculty Workshop for F&OD on Technology and Teaching	1	Faculty	~60	Presenter

			Name:		
2015	Faculty Learning Community: Accessibility through creative innovation.	8	Faculty	~15	Co-facilitator
2015	STEM Teaching Workshop	1	Faculty	~40	Presenter
2015	Technology BrownBag	1	Faculty	~25	Panel
2016	Digital Presence and Public Scholarship	10	Faculty	~20	Co-facilitator
2016	New Faculty Workshop for F&OD on Technology and Teaching	1	Faculty	~60	Presenter
2016	STEM Teaching Workshop	1	Faculty	~40	Co-presenter
2016	Faculty Learning Community: College's Online Workgroup	8	Faculty	~15	Co-facilitator
2016	Faculty Learning Community: Accessibility through creative innovation.	8	Faculty	~15	Co-facilitator
2016	Technology BrownBag	1	Faculty	~150	Panel

11. Provide summary of accomplishments in non-credit instructional activities.

My position in CNS focuses on improvement of digital instruction. This requires that I network across campus, identify resources distributed across campus, and bring people and resources together. As a result, my position requires that I foster community among those working on digital curriculum. At MSU, Faculty Learning Communities (FLC) are recognized as a successful model for dissemination of pedagogical concepts. I currently co-facilitate two of these communities each month, one on Quality Online Instruction and the other on Technology and Accessibility. The FLC on Technology and Accessibility is one of the longest running FLC's on campus and one of the best attended. Based on this FLC's recognized value, Academic HR, Office of Inclusion and Intercultural Initiatives, and MSU IT Services charged the FLC leaders with creating an online training accessibility course for faculty. The 2015-2016 year was spent coordinating FLC participants and developing this much-needed course, which was launched in summer 2016 as a self-enrolled course. In Fall 2016, I, along with colleagues from the College of Arts and Letters (CAL) and the College of Education, initiated another type of faculty community called a cowork. In coworks, faculty and staff work in a shared space on individual projects with the intent of utilizing each other as resources and sounding boards. Out Fall 2016 cowork focused on improving social presence and digital scholarship and provided CAL digital resources - such as server space and website services - to CNS faculty. Much of my time over the last three years has been spent building cross-college collaborations that connect CNS to various campus resources as well as opportunities that maximize benefits for CNS faculty while minimizing costs.

To provide additional opportunities for faculty unable to commit a full semester to an FLC, I also have been giving brown bag seminars, STEM Teaching Essential workshops, and new faculty orientations. These workshops and trainings initiated by diverse partners, including CNS departments, IT Services, F&OD, and the Graduate College. These presentations showcase effective digital approaches to technology and are integral for connecting CNS faculty to other faculty as well as other units campus-wide.

Goals for Non-Credit Instruction:

My focus over the past two years has been bottom-up, wherein I have sought to connect with faculty and identify their challenges. My goal for the next year is to interact more with chairs and directors, to inventory and address CNS unit needs as they relate to digital curriculum.

\* In determining the "past three years" the candidate may elect to exclude any terms during which s/he was on leave.

12. Evaluation of contributions to teaching and instructional activities by unit administrator. Include effectiveness of teaching; presentation of information; innovation and leadership in teaching/learning methods; evidence of promoting an appropriate climate of diversity and intellectual honesty in instructional settings; summary of evidence of recognition from students, peers, faculty, and others within and outside MSU.







13. List significant contributions to planning and development of curricula, academic programs and courses (reference Academic Specialist Handbook - Appendix A: Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.5.1.3).

The Digital Curriculum Coordinator position in CNS was created to address the following three outcomes:

- OUTCOME 1: Improve quantity/quality of online instruction in CNS
- OUTCOME 2: Connect people/units in CNS to university resources
- OUTCOME 3: Foster a community in CNS around digital approaches to education

Defining each of these outcomes, including developing meaningful understanding of constructs such as "improve", was a vital first step in this position. For example, what does quality online instruction mean? To address this objective, I have helped the university to 1) adopt the Quality Matters rubric to guide practices that have been shown to be effective, and 2) draft a digital learning strategy that helps to provide a hierarchy of objectives for faculty and administrators in making decisions for learning, 3) begin the process of building components of evaluation and feedback into digital instruction. Each outcome required a similar thought process and start-up period, as well as collaboration at all levels of the university. To achieve each outcome, I have engaged in short-term Technology Consultations as well as long-term Projects.

## Technology Consultations: subset used to illustrate reach

Unit	Contact	Description
APUE		2014. Online approach for UGS freshman seminar course
BioSci		2016. Using Evernote as a solution for using models in large scale classrooms
BLD		2014. D2L approaches and online testing
BLD		2016. Diagnostics tool between BLD and VetMed
CEM		2016. D2L and large scale chemistry courses, and recording equipment in large scale classrooms
CEM		2016. Syncing D2L for creating an interconnected system of files
CISGS		2015. Creating a flipped model for lab courses
CMSE		2016. Translating materials online, and QM for granting agency
GLG		2015. D2L Interface design
GLG		2016. D2L, accessibility, online methods
IBIO		2016. Digital collaboration with San Diego Zoo
IBIO		2017. Polling solutions and tablets for using models in large scale classrooms,
		options for video technology
MMG		2016. Using ZOOM as an Alternative to PolyComm for distance seminar
MTH		2016. Accessible versions for equations in collaboration with RCPD
MTH		2015. Methods for distance learning for Dow STEM Scholars
NEU		2015. Development of online programs and the role of the 3 <sup>rd</sup> party vendors, in
		collaboration with Hub
PHY		2016. Advertising online courses using 3 <sup>rd</sup> party vendor, connection to Hub
PHY		2016. Flipped classroom development, in collaboration with Physiology
PHY		2015. Methods for capturing and incorporating videos in classroom, in collaboration
		with IT Services
PLB		2015. Mobile devices in learning
PLB		2015. Online learning methods

# Projects

Addressing the three outcomes for my position in CNS requires connecting to units outside of CNS. This allows me to leverage work that has already been done elsewhere in the university, and to share our resource creation. Collaboration allows for development of sustainable structures and approaches for incorporating technology into instruction. The items listed below represent more involved projects aligned to the desired outcomes of my position.

- OUTCOME 1: Improve quantity/quality of digital instruction in CNS
  - Accessibility is directly linked to quality of digital instruction: Too often, accessibility is framed as a series of onerous regulations that impact a fraction of our student body. In fact, accessibility represents an increase in the capacity for all students to engage with digital materials and therefore represents an improved quality in our instruction.
    - Piloted accessibility interns with MSU IT Services to do work for CNS: This program has MSU IT Services training undergraduates in evaluating and remediating digital materials for improved accessibility. This allows CNS programs to bring courses up to federal regulation without having to invest faculty time. These accessibility specialists also work with faculty to help train faculty in creating accessible materials.
      - This focus on accessibility led to innovative approaches in writing alternative text for representations in STEM. These techniques will be communicated to the broader accessibility community through conference presentations.
      - Currently I am working in collaboration with RCPD, Math faculty members, and MSU IT Services to create a workflow that will allow equations generated in LaTex to be accessible to students with screen readers, which will impact accessibility in the fields of physics, math, chemistry, and engineering.
    - *Co-developed 5-year plan for college on accessibility:* Worked with other CNS faculty to create 5-year accessibility plan for the college that was used as a template for the university.
    - Created and revised classroom survey on accessibility: Piloted classroom assessment survey to evaluate course environments and assess potential accessibility issues. Results were presented at the Making Learning Conference 12/16.

# • Pilot programs to test new technologies in educational settings

- Testing adaptive learning systems: Working with MSU Innovation Hub on exploring the benefits and best practices for adaptive learning.
- Slack pilot: Using social networking to connect TAs across section to improve communication and team-based teaching practices. Data being collected for evaluation.
- OneNote lab notebook pilot: In collaboration with MSU IT Services testing application of One Note application for free lab note-taking system that can be shared between students with better integration of digital materials and references. Data being collected for evaluation.
- Untethering faculty from the podium in large enrollment courses: Implementing a system developed by Innovation Hub and Physiology faculty and staff members that allows a faculty member to remotely control presentation software to allow more effective approaches to active learning in the classroom. Data being collected for evaluation.

# • Assessment capabilities

 Improved D2L output: A current challenge with evaluating student learning in D2L is the format that D2L exports data. I am working with MSU IT Services coding team to create a translating tool that will allow faculty to translate survey and test data into a format that can be used for research or scholarship of learning.

- Secured funding for QM subscription: Before the adoption of the Quality Matters Rubric for digital instruction, consistent guidelines for how to evaluate online courses were not available at MSU. Adopting the QM Rubric provides all faculty with guidelines for the creation of the digital environment that is based on research and provides a structure for evaluating online courses.
- Assessment of technology use: Identification of existing technology assessments in collaboration with CNS faculty and IT Services. This will allow faculty to evaluate the efficacy of technology in their teaching.
- OUTCOME 2: Connect people/units in CNS to university resources
  - Digital Curriculum Guide: A step-by-step manual that informs new faculty teaching online about best steps for course development. The manual takes faculty from course creation through accessibility and connects faculty with multiple campus resources to facilitate effective design. This manual was completed and delivered to new faculty in summer 2016.
  - Self-enroll faculty course on accessibility and Universal Design for Learning: Developed in collaboration with colleagues across campus, this course provides faculty with access to MSU and worldwide resources. A faculty member who completes this course will be able to create accessible course content and remediate existing content to meet federal accessibility standards. This course was completed and delivered to new faculty in summer 2016.
- OUTCOME 3: Foster a community in CNS around digital approaches to education
  - Innovation Hub Technology & Education Blog: In order to communicate innovative uses of technology, I am working with the Innovation Hub to create a blogging system where faculty can report on their use of technology. These blogs will include successful experiences, as well as insights learned through inevitable technology failures. We anticipate the blog system will be in place in Fall 2017.
  - Curriculum Sharing in BioSci: To meet the challenges of team-based curriculum development, I am working with BioSci faculty to pilot use of Microsoft 360 to connect faculty and to create a central storehouse for curricular materials. We are currently waiting for the necessary functionality to be activated in MSU's system. Depending upon when this activation occurs, I anticipate curriculum sharing will be implemented in Fall 2017.

Goals for Curriculum Development and Related Activities: See above for ongoing projects.

14. Evaluation of curriculum planning and development by unit administrator. Include professional contributions and evidence of leadership; commitment to and effectiveness in promoting diversity and intellectual honesty; summary of evidence of recognition of peers, faculty and others within and outside MSU.

Name:



15. List materials authored or co-authored in support of MSU advising, MSU credit or non-credit courses, or for use in MSU service/outreach activities. The list should be chronological order by category with the most recent work listed first. Include author(s), title, date, and target audience or course.

## Sample Materials Created Over the Past Two Years

- 1. Digital Learning Strategy Committee ( , member), 2016, Digital Learning Strategy for Michigan State University
- 2. ., 2016, Digital Curriculum Guide
- 3. Accessibility Faculty Learning Community , co-facilitator), 2016, Accessibility Self Enrolled Course
- 4. 2015, Accessible Syllabus Template
- 5. 2015, Accessible PowerPoint Template
  - 2015, CNS 5-year accessibility plan

16. List research publications, papers, and other creative works under headings of (1) Books; (2) Book Chapters; (3) Bulletins or Monographs; (4) Articles (for multi-authored articles, indicate how the primary or lead author can be identified ); (5) Reviews; (6) Papers read/published in conference proceedings; (7) Invited papers; (8) Artistic endeavors (exhibits, showings, scores, performances, recordings, etc.); (9) Other scholarly and creative works and activities (video production, etc.). The list should be in chronological order by category with the most recent work listed first; asterisk monographs and articles which received peer review.

6.

Name:

#### Book Chapters:

(2015). The Foundations of Science MOOC: One institution's approach to building community and free-choice learning resources. In MOOC case book: Case studies in MOOC design, development, and implementation.

### Articles:

. (2016). Severe weather warning communication: Factors impacting audience attention and retention of information during tornado warnings. Weather, Climate and Society, 8(4), 361-372.

(2015). Factor analysis of drawings: Application to college student models of the greenhouse effect. International Journal of Science Education, 37(13), 2214-2236.

(2015). Visual representations on high school biology, chemistry, earth science, and physics assessments. Journal of Science Education and Technology, 1-17.

(2015). Drawing-to-Learn: A framework for using drawings to promote model-based reasoning in biology. CBE-Life Sciences Education, 14, 1-16.

### GRANTS

17. List grant and/or contract proposals authored/co-authored in last six years.\* Each proposal should consist of a 2-line entry as described below. For Amount Funded, if the proposal has not been funded, type "pending" or "rejected" as appropriate.

Line 1: Title of the proposal

Line 2: Name of granting or contracting agency, date submitted, amount funded, principal/co-investigators (if not the candidate).

Transforming Teachers through Making NSF, 12/2015, \$295,716 (rejected)

Journalistic and Scientific Communication of Uncertainty - Identifying Norms and Communicating Best Practices NSF, 11/2015, \$299,949 (rejected)

Collaborative Research: Drawing to Learn: Best Practices for Using Student Drawings to Improve Model-Based Reasoning NSF, 2/2014, \$231,830 (rejected),

Journalistic and Scientific Communication of Uncertainty - Identifying Norms and Communicating Best Practices NSF, 11/2014, \$299,862 (rejected),

Collaborative Research: Effective Climate Change Communication: From Physical Exhibits to Augmented Reality NSF, 11/2014, \$844,808 (rejected),

In the eye of the beholder: Cultural influences on interpretation of visual representations. Pearson, 5/2014, \$5,000 (funded),

Exposition, narration, and animation: How best to spin a scientific yarn? Spencer Foundation, 10/2013, \$49,916 (rejected),

Name:
DIP: The Ecology of Adaptive MOOCs. NSF, 1/2013, \$1,346,881, (rejected),
The Foundations of Science Massive Open Online Course. Bill and Melinda Gates Foundation, 11/2012, \$49,939 (funded),
The Foundations of Science Massive Open Online Course. Desire2Learn, 11/2012, \$50,000 (funded),
Natural History curriculum for mobile apps. NSF, CollectionsWeb of the Research Coordination Network, 8/2012 \$2,700 (funded)
Mystery in the Museum: Augmented Reality Anteaters in the MSU Museum. Society for the Study of Evolution 7/2012, \$800 (funded),
POWerful Design: Nature as Inspiration for Technology. Society for the Study of Evolution 7/2011, \$800 (funded),
Evolutionary Games for Museums. NSF, BEACON 5/2011, \$83,000 (funded)
Application of Cognitive, Linguistic, Sociological, Geographic, and Learning Science in Development of Best Practice for Supported Climate Change Science. NASA, 5/2010, \$488,711 (rejected),
<b>RESEARCH</b> 18. List significant contributions to research (reference Academic Specialist Handbook - Appendix A : Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.5.2).
Closing the feedback loop: Using student evaluation forms to discover accessibility issues. December, 2016. Presentation at the Making Learning Accessible Conference, East Lansing, MI.
Moving from Accessibility to Universal Design for Learning: A Paradigm Shift from Fear to Hope. December, 2016. Presentation at the Making Learning Accessible Conference, East Lansing, MI.
S.T.E.M. to S.T.E.A.M.: Adding drawing to the science classroom. October, 2015. Presentation for Maricopa Community College's Arts and the Creative Campus Workshop
Exploring the 'Why' & the 'How' of Accessibility. April, 2015. Presentation at the 8th Annual Emerging Technologies for Online Learning International Symposium.

In the eye of the beholder: Cultural influences on interpretation of visual representations. . March, 2015. Presentation and poster for the Biology Leadership Conference, Austin, TX.

sTem: How to capitalize on technology in the teaching of science. January, 2015. Presentation for Northern Michigan University's Center for Teaching and Learning.

Name:		
Student Drawings and Textbook Visuals in Science Education Department at Northern Michigan University.	n.	January, 2015. Presentation for Biology
Arts and Sciences: Creativity and Integration. Arts Integration Workshop.	January, 2015.	Presentation for K-12 Teachers in the MSU

Instruct 2020 Visual Curriculum and opportunities for engaging assessments. November, 2015. Presentation for the Professional and Organizational Development (POD) 40<sup>th</sup> Annual Conference, San Francisco, CA

\* The candidate may elect to extend the 6-year period by a length of time equal to the length of any leaves taken during the past 6 years and make a notation to this effect.

19. Evaluation by unit administrator of the contributions to research. Include research techniques; support of others in research endeavors; advancement of knowledge, public benefit, economic development; promotion of appropriate climate for creativity, diversity and intellectual honesty in the research setting; summary of evidence of recognition of peers, faculty and others within and outside MSU.



#### **PUBLIC SERVICE/OUTREACH**

20. List significant contributions in the area of public service/outreach (reference Academic Specialist Handbook - Appendix A: Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.5.3).

Science in Unexpected Places.	April, 2015.	Presentation
for MSU Science Festival.		

21. Evaluation of public service/outreach activities by unit administrator. Include delivery of educational and technical information, expertise and services to individuals, business, industry, government, educational institutions or other organizations such as galleries, museums, libraries; evidence of leadership; promotion of an appropriate climate for diversity and intellectual honesty in service/outreach settings; a summary of evidence of recognition by clients, peers, faculty and others within and outside MSU.

#### **ADMINISTRATIVE ACTIVITIES**

22. List significant contributions in the area of administration (reference Academic Specialist Handbook - Appendix A: Functional Description of Specialist Duties, Advancement in the System and Administrative Responsibilities, section A.6).

Leading Information Literacy collaboration with the Library			
Review committee for a second , Academic Specialist			
Reviewed proposals for Making Accessible Learning conference			
Board for the Making Learning Accessible Conference			
AT&T Awards Committee Spring, 2015			
Associate Director for Center for Integrative Studies in General Science			

23. Evaluation of administrative activities by department chairperson/school director.



#### **COMMITTEE SERVICE**

24. Indicate significant committee service and contributions under the following headings:1) Unit/department, 2) College, 3) University and 4) National/International.

Unit
Information Literacy Initiative
Faculty search (2017)

2) College Ecology Curriculum Committee BIOC

3) University
MLA Advisory Board
Web Accessibility Policy Liaisons
Learning Systems Advisory Group
<sup>15</sup>

Innovation Hub Advisory Panel Quality Matters Ad Hoc Group Digital Learning Strategies Workgroup Provost's committee on University-Wide Innovation Hub for Technology and Learning

25. Participation in professional associations/organizations/committees/societies.

Name of Society/ Organization	Office & Committee	Meetings Attended	Check if on
	Assignments	(Year)	Program
Online Learning Consortium	NA	2015, 2017	Х
Educause	NA	NA	

26. List other professional development activities including attendance at conferences, workshops and seminars, enrollment in a degree granting program, etc.

Attended Open Educational Resources Conference. Edinburgh, Scotland, April 2016

27. List awards and/or honors received.

2014-2015 MSU Global Fellow.

2014 AT&T and MSU Award in Instructional Technology for Best Online Course.

28. Summarize any other significant contributions which have not been covered elsewhere.

N/A

29. Attach copies of internal letters of recommendation and letters of external peer review.

N/A