# PRAC Report, January 2023
# Media Arts and Science Undergraduate Program
# Luddy School of Informatics, Computing and Engineering

## Executive Summary

The media arts and science program in the Luddy School of Informatics, Computing and Engineering at IUPUI offers a BS (Bachelor of Science) degree. Our program has approximately 311 students enrolled across six specializations: 3D Graphics & Animation, Digital Storytelling, Game Design & Development, Video Production & Sound Design, Web Design & Development, and Full-Stack Development. Eleven full-time faculty members and five associate faculty offer currently support sixty-one undergraduate courses.

As the first school of its kind in the United States (founded in 2000), the Luddy School of Informatics, Computing and Engineering is an innovator in a fast-paced and dynamic field. Our media arts and science program integrates media, technology, computing, social science, and information systems design in unique ways.

The feedback received on the PRAC report, submitted in 2019, indicated the program should develop more systematic mechanisms to assess program and course learning outcomes and that not enough courses were assessed to give a clear picture of the program. PLOs were also not connected to IUPUI Profiles of Learning for Undergraduate Success (IUPUI+).

Based on this constructive feedback, the media arts and science (MAS) program has progressed with increasing the scope and rigor for assessing the program learning outcomes by deploying **two major assessment interventions** in preparation for the PRAC 2022 report.

First, because MAS has a vast range of courses (60+ sections a semester), we have chosen to assess a core set of five courses that all MAS students are required to take over the 4-year undergraduate experience. Should our assessment mechanism prove understandable and consistent across our faculty, we aim to expand this method of assessment through all the courses of the program. The results of this assessment intervention, detailed in the remainder of the report, show that the intervention is effective. Alignments between courses, IUPUI+, and program learning outcomes can be reviewed effectively. Scaffolding of courses from freshmen through senior year can also be evaluated from a program level. Consistency between sections of classes taught by various faculty can also be easily compared.

Second, a program-wide, course learning outcomes (CLOs) review and revision took place to achieve consistent learning outcome language and to conform to best practices. This laid the groundwork for curriculum-mapping our course offerings to both better align our objectives with IUPUI+ and to ensure the best career preparation for our students. Moreover, consideration of course assessments and their relevance to and impact on the program's learning outcomes (PLO) is part of this curriculum-mapping process. The results of this assessment intervention, detailed in the remainder of the report, show that the program has an opportunity to revisit its program learning outcomes, create specialization learning outcomes, and align our newly defined Components of Creative Expression.

Based on these results, the program's plans to improve the assessment initiatives in the following ways: expand our Assessment intervention number one to include specialization courses, evaluate and

modernize program learning outcomes to, and better align assessment in courses that have multiple sections between various faculty such as capstone courses.

## Relevant Learning Outcomes

**Media Arts and Science Program Learning Outcomes**
**https://soic.iupui.edu/degrees/undergraduate/media-arts/learning-outcomes-2/**

**MAS Program Learning Outcome History**

The fundamentals of the Media Arts and Science PLOs have been unchanged since the school's inception over 20 years ago. The MAS program is not accredited. The PLOs encapsulate early 2000s trends toward general skills and philosophies of digital media for a still young digital media profession.

Today, the field has matured into several distinct focus areas represented in the program by six different 4-year Bachelor of Science experiences, called specializations (3D Animation, Game Design & Development, Digital Storytelling, Video Production & Sound Design, Web Design & Development, and Full Stack Development). Employment positions in these fields are all in high demand globally, with locally strong job outlook and fast growth in video, social media, web, and full stack specializations. The professional sector of digital media is fast-paced and constantly evolving. To meet the market demand for training in these high-demand areas, our program offers certificates unique to the Midwest, and bootcamp-style courses that are state-supported by Indiana's Next Level Jobs initiative.

## Curricular Activities During Reporting Cycle

### N100 Foundations of New Media: Pedagogical Redesign to increase student engagement and alignment to careers in the field.

N100 Foundations of New Media is a required foundational course in our MAS program and is also offered in the Gen Ed Core (6. *Humanistic and Artistic Ways of Knowing)*. The course has historically seen a high DWF rate and typically achieves a C average grade. However, the average grade is not typically derived through the conventional bell curve distribution of grades, but rather the inverse, due to a high number of A's and F's.

A new instructor's innovative approach to the course in the fall of 2022 involves creating a flexible (and Covid-resistant) structure in which students acquire points as they chose which assignments they want to complete. With over 53 assignments on offer, totaling over 6,500 points, students are given agency to decide how they will acquire sufficient points to obtain the grade they want. An A+ requires 50% of the total points available. Certain assignments, such as the milestone assignment required by the Gen Ed Core and pre-recorded lectures on the historical foundations of new media that contain embedded PlayPosit quizzes, create a shared learning experience. Weekly class meetings, dedicated to panels and speakers (featuring over 35 professionals and alumni from a wide variety of industries) who discuss all aspects of their respective industries and careers, are primary component of the shared learning experience. These give students exceptional first-hand access to, and insight into, information pertaining to their potential careers in our field.

### General Ed Core Courses: prep & enhancement of course portfolios to secure re-approvals

The MAS Program has six general core courses serving the campus-wide student body. All have been recently reviewed and approved to continue by the IUPUI campus General Core Committee.

https://soic.iupui.edu/degrees/undergraduate-courses/general-education/

## Certificates

### Boot Camps: An innovative, fast-paced Certificate Program in Multi-Device Web Development

In 2021, the MAS program created an alternative learning experience known as a boot camp, matching trends in professional technology education and Fortune 500 companies, to train in specific skills sets that are in high demand. The Multi-Device Development Boot Camp is an online only experience that expedites six traditional 16-week courses down to four weeks each. In one traditional semester, students who complete this boot camp are career-ready for employment in front-end web development. They can choose to continue their bachelor's degree, enter the workforce, or both. This boot camp is sponsored by Indiana's NEXT LEVEL Jobs initiative, so students can enroll in the program completely free.

Multi-Device Development Boot Camp

### Virtual Production Certificate: Capturing the Convergence of AR, Film and Gaming for the next generation of video production.

During Covid, the MAS faculty secured a first-in-the-nation undergraduate certificate in virtual production. Media arts and science began offering the certificate in virtual production in Fall 2022. Virtual Production combines best practices in film, 3D, and game production into trending careers in storytelling, and lessens the need for professionals to move to Hollywood for employment. Since the creation of the certificate, several competitive virtual production spaces have been created in Chicago, Louisville, and Cincinnati. Indiana is poised to compete in both talent and location in this exciting evolution in storytelling.

https://soic.iupui.edu/degrees/minors-certificates/virtual-production/

### Comprehensive Capstone Assessment & Consistency Between Faculty Mentors

In Spring 2021, MAS faculty started an assessment of the senior capstone experience. There are four capstone options for MAS students: 1) One-on-one mentorship, 2) Internship-based capstone, 3) A traditional capstone course where many students share one mentor, and 4) A study-abroad in Greece that includes public dissemination. The faculty aligned their understanding of their own mentoring in the context of IUPUI+, as well as relating their students' experiences to IUPUI's capstone high impact practices taxonomy.

Key highlights include needs for: 1) consistency across faculty assessments, 2) increased rigor to combat grade inflation, 3) the creation of more points of peer review in capstone projects, 4) the alignment of Capstone projects directly to career marketability.

The Full MAS Capstone Report can be found here:
MediaArts&Science_Campus Capstone Assessment 2021.pdf

## Co-Curricular Activities & Learning Environments

Before and during Covid, and especially upon return to campus, the MAS program has prioritized student communities and co-curricular culture. We have active student groups and student leadership at the school and campus levels of student government. Students frequently leverage allocated funds to travel to professional conferences nationally and bring that energy back into our spaces. Our student groups emphasize bringing professional speakers to the program's student body in each of our specializations. During Covid, SIGGRAPH IUPUI committed to hosting an industry speaker every other week (totaling 24 speakers). The result was a maintaining of student collaborations, a lower sense of loneliness at home for students within multiple MAS specializations, a powerful sense of future career opportunities, and an easier return to in-person campus communities post-Covid.

Our informal learning spaces were enhanced as well. Due to a large space acquisition by the school we have 4 informal learning labs for MAS students: Emerging Technology Lab (ETL), Media Arts Research (MARLA) Learning Arcade, METL (Modernization Environmental Development Lab), and Video Editing Lab (VELa). Both the MARLA (2022) and VELa (2021) have won campus learning environment grants to redesign and improve the spaces for student work and collaboration.

The goal is to provide professional environments in which students can produce quality work and attain advanced skills, but in addition to providing an improved environment, these spaces have many equally important benefits. These labs are open to MAS students 24/7 (after requesting access) and contribute to our program's rich student experience by:

- Providing more comprehensive technical capabilities for students so they will want to use the space more frequently, and in the process contribute to the social fabric of the environment. They come for the technology and stay for the socializing.
- Being a significantly more pleasing and comfortable environment to spend time in. This makes users more productive, more likely to be present longer, and thus more likely to interact with their peers.
- Providing more resources to our student groups: MacGuffin Media, ACM SIGGRAPH IUPUI, Game Developers Group. This enables them to make a bigger impact with both MAS students and students from other schools who get involved in the clubs.
- Paving the way for more and varied teaching/learning opportunities in each space. Such as instructing the small-group independent study, capstone students in the professional practices and workflows associated with those spaces.
- Providing opportunities for more student collaborations, (in addition to the assigned ones in various courses), as well as less formal interactions.
- Becoming the media production heart(s) of our program's recent initiative to teach virtual production.
- Providing spaces for our students to engage with community partners in co-curricular, project-based, and service-learning experiences.

This vision for these spaces is an extension of an approach to teaching that situates learning in contexts that emulate the professional world. By emulating professional environments, these enhanced spaces provide the controlled space needed to refine our students' craft. They will also instill considerable confidence in students as they learn to function in a professional caliber space and experience professional production pipelines in each of our specializations. When alums encounter such spaces after graduating, they will be familiar with them and will feel at home there.

Better facilities, resulting in more foot traffic, translate into more student interactions. When students *just* work at home, their assignments are completed to the best of their limited capabilities without an opportunity for feedback during the process. Working on assignments in a shared environment opens students to the possibility of unexpected and productive input from their fellow students (and from faculty, of course).

Screening work and receiving critical feedback are important parts of the creative process. Having enhanced spaces can help facilitate this type of interaction. Countless casual interactions between students and between students and faculty can make a major impact on student work—that simply does not happen with students working from home.

## Teaching / Learning Strategies

To increase program-wide retention, the school undertook an effort to systematize both the regular reporting of Student Engagement Rosters (SERs) and a consistent Canvas course experience with early emphasis on first-year, first-time students. These efforts started in Fall 2020. By the end of Fall 2022, MAS Faculty reported 100% to SERs at least once *(out of 4 interventions)*, and 80% faculty continued to report by the final intervention, aligning with student deadlines for withdrawal.

**Undergraduate SER Reporting Schedule**
Week #2 Attendance and Participation
Week #4 Participation, Early Grades
Week #6 Midterm Feedback
Week #8 Catch students needing withdrawal and midterm individual reflection for all students.

## Program-Wide TILTing of Assignments

Revisions to the CLOs coincided with a school-wide effort to conform Canvas sites and assignments to the form set forth in the Transparency in Learning and Teaching model (TILT), recently adopted by the campus for undergraduate success. The TILT model (the practice of which is becoming known as TILTing) has so far been rolled out in our N100 and N200-level courses and next year will be implemented at the N300-level. A TILTing review of the Canvas sites during the fall 2022 semester for the N100 and N200-level courses was conducted by the program directors. We found widespread adoption, but also room for more conformity in a few courses. With TILTing fully implemented, and the increased consistency resulting from revisions to course level outcomes, we anticipate a more consistent and easier experience for undergraduates as they navigate their plan of study, ideally leading to better outcomes and higher retention.

- **2021** N100-level MAS Courses adopted Canvas Consistency, and TILTING Rubrics
- **2022 Fall –** All N200-level MAS Courses adopted Canvas Consistency, and TILTING Rubrics, all N100-level courses continue to be audited for quality assurance.
- **2023 -** Our aim is to complete these adoptions across all MAS courses in the next 2 years with N300-level courses in the fall 2023 and N400-level courses in the fall of 2024.

## Peer Observations of Teaching

In an ongoing effort toward improving excellence in teaching, MAS started a systemic processes of peer observations of teaching in the fall semester of 2021. Each faculty member was asked to sign up to observe at least two other colleagues and fill out an observation form. The form was then provided only to the observed faculty member for their self-improvement. It did not become part of their record, but faculty could use it at their discretion. There was wide compliance with the review process. It will

continue as it becomes a standard part of fostering a culture of teaching improvement and excellence in MAS.

## Overview of Assessment Cycle

The Media Arts and Science PRAC cycle is every three years. This report reflects the energy and improvements towards the program's self-assessment from Spring 2020 – Fall 2022.

While this reporting cycle was during COVID-19 Pandemic, the MAS faculty and students adopted online best practices naturally and quickly. Covid had little to no impact in this cycle of assessment, nor on our improvement initiatives.

## Assessment Methods and Approaches

### Learning Outcomes Assessment, IUPUI+, PLOS & Alignment to Student Performance | Assessment Intervention #1

Media Arts and Science, while diverse in its 4-year undergraduate specializations (3D Graphics & Animation, Digital Storytelling, Game Design & Development, Video Production & Sound Design, Web Design & Development), has a required set of core courses that all students take during their 4-year undergraduate experience.

These five core courses are what we used for creating a sustainable assessment, giving support in the future to a program-wide assessment across our six specializations. Core course faculty were asked to align their in-class assessments with course learning outcomes, MAS PLOs, and IUPUI+, then report both the frequency of grades and grade averages from each assessment over the last three years.

These 5 courses were selected because ALL Media Arts and Science students must take them at specific points in the sequence of their degree. These courses are also oriented toward the professional development of the students, no matter their area(s) of specialization.

**Foundational, first-year course:**
- **N100 Foundations of New Media** (3 Sections)

**Sophomore/junior career and portfolio planning courses:**
- **N299 Career Planning**
- **N399 Portfolio Development**

**Experiential and community-based learning course:**
- **N420 Multimedia Production Development**

**Capstone Course:**
- **499 Capstone Experience** (Multiple Faculty Mentors)

### Direct and Indirect Assessment Approaches

**Direct Assessments**

MAS Core Course instructors mapped their CLOs to one primary MAS PLO and one IUPUI+ outcome. They then identified the main assessment mechanism for each CLO and recorded the courses grade frequency and average student scores for their 2020-2022 courses.

**Indirect Assessments**
In each report, faculty also reflected on how their assessments in each course connect to IUPUI+ and MAS PLOs as well as discussed future interventions for continual improvement in their upcoming semesters. *(Individual Reflections can be found in links above)*

## Course Learning Outcomes Review & Curriculum-Mapping | Assessment Intervention #2

### Course Learning Outcomes

To gain a better perspective on overall instruction in media arts and science, a program-wide review of all course learning outcomes was completed. (It was started in February of 2020, but was delayed due to Covid.) As part of this review, all instructors submitted their current outcomes, assessed the continued relevance to current course content, conformed verbiage to best-practices, and categorized the outcomes into one of four, what we are calling, 'Components of Creative Expression': Technique, Aesthetic, Meaning, and Professional Practice.

A shared Excel sheet collected the outcomes and provided the foundation for the mapping work that followed.

### Curriculum-Mapping

Curriculum-mapping was undertaken to see how current course assessments aligned with program level outcomes; potentially leading to revisions of the PLOs and/or the curriculum. *(Work yet to be undertaken)* For the curriculum-mapping, each instructor mapped relevant assessments against the PLO they felt it best aligned with, then rated the strength of that alignment on a scale of 1-10. The resulting data will allow us to quantify to what degree the PLOs are being addressed and how those alignments break down according to academic year.

The course-level outcomes, as well as the specialization outcomes, and the various assessments cited in the curriculum map, were then labeled with a relevant component of creative expression, (CCE): Technique, Aesthetic, Meaning, and Professional Practice, based on what the instructor felt was the primary aspect of the outcome or assessment. This would allow us to collect data to see where in the program these various components are emphasized or lacking.

### The Components of Creative Expression

TECHNIQUE: The skilled performance of the artist, designer, writer, or the like utilizing the technical knowledge and use of the materials, instrumentation, equipment and/or software with skilled craftsmanship.

Skill/Knowledge

- Technical Knowledge of Materials
- Use of Equipment & Software
- Skilled Performance & Craftsmanship
- Mastery of Instrument

AESTHETIC: A philosophical study of beauty (Principles of Design) and the ugly as it pertains to appraisal, appreciation, and assembly of the elements of design. A study of this discipline is how to arrange the elements of design to express a stylistic and appealing language. Aesthetics are performed once competent techniques are achieved.

Design/Beauty

- Principles of Design (Beauty)
- Elements of Design
- Is it Stylistically Interesting and Novel?
- Appealing

MEANING: The accomplished purpose or expression of what the technique and aesthetics intended to communicate with an idea or feeling.

Purpose/Truth

- Expression
- Purpose
- Does it Accomplish what Communication it Intends?
- Is it Sincere or Trite in Expression?

PROFESSIONAL PRACTICE: Preparation of artifacts for public dissemination, career preparation, and marketability.

Career Readiness/Marketability

- Portfolio/ePortfolio
- CV/Resume/Cover Letter
- Time/Pricing/Cost Estimates
- Personal Online Brand Management

# Overview of Key Findings from Assessments of Learning

## 2020-2021 Findings

In Fall 2020 and 2021, MAS faculty created two foundations for program-wide assessment. First, was a way to align PLOs and IUPUI+ to each of five core course's learning outcomes (CLOs). Faculty were asked to identify the primary assessments in a course that measured student understanding, align them to all levels of learning outcomes, and count the grade distribution and average for that assessment. Finally, faculty were asked to reflect on the assessments related to IUPUI+ Profiles.

The findings in the courses selected for this assessment intervention identified three key insights:

- Courses with multiple sections aligned assessments to IUPUI+ and MAS PLOs with variety,
- The core courses reviewed appear to have high-grade inflation, and
- The MAS core courses reviewed assess 50% MAS PLOS at low frequency across 4-years of the undergraduate experience.

The second major program-wide intervention was an overview of course-level outcomes as the first step in a larger effort to map the program's curriculum. Early in the process, it became apparent that form, content, and the number of outcomes varied widely from instructor to instructor: outcomes with two or three verbs, wide usage of verbs like "understand" and "demonstrate," courses with ten or even twelve outcomes, or too few outcomes. So before advancing to the curriculum-mapping, we decided to

implement more consistent standards for outcomes. Best practices for writing learning outcomes were shared with faculty and the program directors worked with individuals to help make needed revisions. This helped instructors streamline and strengthen their course outcomes. Clarity and consistency across the program were primary goals of the revision process. From this work, MAS developed a preliminary set of Specialization Learning Outcomes.

The early findings of these methodologies can be found in our 2021 PRAC Summary report: PRAC Summary_Jan22_v2.pdf

## 2020-2022 Findings

### Assessment Intervention #1

#### MAS Core Course Alignment to Program Learning Outcomes and IUPUI Profiles of Learning for Undergraduate Success

Addressing the feedback from PRAC 2019, a standard protocol towards course assessment was utilized that asked faculty to align course assessments and course-learning outcomes with MAS PLOs and IUPUI Profiles of Learning for Undergraduate Success (IUPUI+) After each instructor aligned their assessments to a primary MAS and an IUPUI+ outcome, they then averaged their students' scores for those assessments.

#### Grade Averages of Assessments Connected to IUPUI+ over 4 years of MAS Program Core

* NA denotes an IUPUI+ Profile that is NOT ASSESSED in that course.

| IUPUI+ | FY | Sophomore | Junior | Senior | |
|---|---|---|---|---|---|
| | N100 | N299 | N399 | N420 | N499 |
| Communicator | 80.1% | 96.8% | 85% | 90.8% | 92.2% |
| Problem Solver | 86% | 84.1% | 77% | 90.5% | 92.4% |
| Innovator | 75% | 84.1% | 77% | 88% | 93.3% |
| Community Contributor | NA | 84.1% | NA | 78.6% | 90.2% |

**Figure 1**

** N100 was taught by (3) MAS Instructors with various approaches towards course during and after Covid, not all instructors isolated (1) Primary IUPUI+ and (1) Primary MAS PLO during the Core Course assessment review*
** N499: (8) Instructors representing (8) Mentorship Sections, (1) Course Section, (1) Internship Section, and (1) Study Abroad, consistent assessment of Capstone sections is still in their infancy.*

The Community Contributor IUPUI profile is not assessed or connected to first-years in N100, and again junior year in N399. There is an opportunity to diversify the assessments in both courses to better align the Community Contributor Profile in both first-year and junior students.

In the majority, assessments appear to have grade inflation. Multiple instructors are adding TILTED rubrics into their assessments. Junior and Senior Level Courses will add TILTED Rubrics to course assessments in Fall of 2023 and Fall of 2024, respectively. We see a greater grade distribution in MAS courses that have already TILTED their assignment rubrics.

A summary of the faculty reflections in the context of IUPUI+ success trend towards a perspective of addressing issues with grade inflation and incorporating more Community Contributor interventions by

connecting student work to industry and professional sector expectations. Detailed individual reflections can be found in each course report. (pg. 6)

### Grades Averages of assessments connected to MAS PLOs over 4-year MAS Program Core

* NA denotes a Program Learning Outcome that is NOT ASSESSED in that course.

| MAS PLOs | FY | Soph | Junior | Senior | |
|---|---|---|---|---|---|
| | N100 | N299 | N399 | N420 | N499 |
| Understand digital media and its effective use as a form of communication. | 85% | NA | NA | NA | NA |
| Communicate ideas effectively in written, oral, and visual form to a range of audiences. | 86% | 94.2% | 85.5% | 90.1% | NA |
| Work effectively as a member of a team to achieve a common goal. | N/A | 84.1% | 94.7% | 93.3% | NA |
| Analyze a problem, identify and evaluate alternatives, and plan an appropriate solution. | 84% | NA | 77% | 84.5% | 92% |
| Evaluate media from multiple perspectives using the theories, concepts, and language of digital media with an appreciation for the history, theory, and traditions of digital media. | 79% | NA | 68.3% | NA | NA |
| Demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. | 83.9% | NA | NA | NA | 93% |
| Develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards. | NA | NA | NA | 88.3% | NA |
| Explain the impact of digital media on individuals, organizations, and society. | 76% | 99.3% | NA | 88.5% | 91% |
| Acknowledge diverse opinions regarding professional, ethical, legal, and social issues with a global perspective. | 75% | NA | NA | NA | NA |
| Plan for continuing professional development with an appreciation of the need for lifelong learning. | N/A | 84.1% | NA | 78.6% | 90% |

**Figure 2**

** N100 was taught by (3) MAS Instructors with various approaches towards course during and after Covid, not all instructors isolated (1) Primary IUPUI+ and (1) Primary MAS PLO during the Core Course assessment review*
** N499 Has (8) Instructors representing (8) Mentorship Sections, (1) Course Section, (1) Internship Section, and (1) Study Abroad Section, Several MAS Capstone Faculty did not review all 2020-2022 semesters*

MAS Program Learning Outcomes 1, 6, 7, 9 are not assessed as regularly in these 5 core courses as the writers had hoped. One consideration is that these courses are too general in nature to consider the specific professional requirements of each specialization. Adopting this protocol in key courses within

each MAS specialization will be a good next step towards confirming if these program learning outcomes are more regularly assessed and continue to hold relevancy.

Again, in the majority, assessments appear to have their grades inflated. Multiple instructors are adding TILTED rubrics into their assessments. Junior and Senior Level Courses will add TILTED Rubrics to course assessments in Fall of 2023 and Fall of 2024, respectively. We see a greater grade distribution in MAS courses that have already TILTED their assignment rubrics.

Capstone course score averages warrants further discussion. Most students in MAS seek one-on-one mentorship for their capstone requirements. While these scores do appear inflated; each student must apply to their faculty mentor of choice. The faculty mentor ultimately gets to select the students they will advise for each semester (no more than five). Due to this selection process, faculty tend to only accept student proposals that are highly likely to succeed, thus the scores represent that expected and actualized success. There is still room for deeper and more regular assessments throughout the capstone semester. A need to find consistency in capstone assessment through the entirety of the semester that still allows for the faculty variances in expertise and mentorship during assessment is the goal of the MAS faculty.

A summary of the faculty reflections in the MAS program learning outcomes is lacking. In this review cycle, this is due to a designed focus towards IUPUI+ and an ongoing concerted effort to review program learning outcomes (see Intervention #2 (pg.12). Once MAS PLOs are reviewed by faculty, and amended, if necessary, the protocol will include a reflection prompt for faculty to address their assessments in the context of the PLOs. Detailed individual faculty reflections can be found in core course reports. (pg. 6)

## Areas of Concern based upon Assessments Intervention #1

A significant challenge and point of feedback in 2019 PRAC report was the program's tendency to connect several IUPUI+ and MAS PLOs to each course learning outcome/assessment. This resulted in data that was difficult to interpret when determining if a CLO met its PLOs' objectives within the coursework. This protocol was mostly successful in getting faculty to select only one, or a primary, IUPUI+ and MAS PLO per course learning outcome/assessment. This allows us to see which PLOs are underserved within classes more easily and which are over-assessed in each class.

There is an opportunity to expand this intervention into other courses beyond the five of this initial effort. In the process, greater insight into student performance on assessments, aligned with a bigger variety of PLOs, will provide better metrics. Assessments aligned with PLOs centered on professional and portfolio development are embedded well across the five courses examined in this intervention, but assessments appear to have inflated grades. Multiple instructors are adding rubrics into their assessments, that, plus TILTing, can help mitigate grade inflation. The alignment of CLOs to MAS PLOs is assessed in greater detail in Assessment Intervention #2, below.

We are pleased with this mechanism of CLO assessment. As we scale the number of courses being reviewed in this way into each specialization, we will be able to see how more student scores are directly connected to the PLOs and IUPUI+.

As the program's faculty adopt consistent TILTing of assignments that include rubrics for evaluation, we anticipate a greater distribution of grades and a continual improvement of course rigor. Higher student expectations within every course will contribute to each student's professional readiness and marketability.

## Assessment Intervention #2

### Course-Level Outcomes

Due to the comprehensive evaluation and overhaul of our CLOs, we started to determine our specialization-level outcomes (SLOs). These will be further discussed and refined in 2023.

| **New Media Arts and Science Specialization Learning Outcomes** |
|---|
| |
| **3D Graphics and Animation** |
| **Technique** |
| Execute professional modeling, unwrapping, texturing, shading, lighting, rigging, animation, motion capture, visual effects, compositing, and real-time rendering. |
| Synthesize best practices of the production pipelines of games, films, and interactive experiences. |
| **Aesthetics** |
| Balance principles of design, animation, anatomy and form towards a project's aesthetic. |
| Employ methods of effective design for motion graphics and digital effects. |
| **Meaning** |
| Apply methods of effective storytelling in planning for the execution of games, films and interactive experiences. |
| **Professional Practice** |
| Evaluate a production's technical pipeline, aesthetic, meaning, cost and audience. |
| Develop personal brand, demo reel and professional network |
| Anticipate demand of skills and emerging industries. |
| |
| **Digital Storytelling** |
| **Technique** |
| Execute technical requirements common to digital storytelling such as acquiring or creating digital assets and assembling them. |
| Synthesize best practices of pre-production, production, and post-production into the successful completion of digital storytelling projects. |
| **Aesthetics** |
| Evaluate storytelling projects by employing industry standards and techniques. |
| **Meaning** |
| Apply methods of effective storytelling in the creation of digital stories from concept through production. |
| Employ industry standard methods of effective digital marketing. |
| |
| **Game Design and Development** |
| **Technique** |
| **Execute** professional technical practices for game design such as learning current game engines, game mechanics, game balance, to create fun/engagement for players of all types. |
| **Synthesize** technical best practices for game design and development that pertain to both digital and analog game creation. |
| **Aesthetics** |
| **Balance** engaging 2D/3D visuals with enriching narratives and lore along with well-designed and fun game mechanics for a successful gaming experience. |

| |
|---|
| **Demonstrate** a wide spectrum of visual styles, genres, and motifs for creating specific gaming experiences. |
| **Meaning** |
| **Apply** methods of effective game design and development through the creation of both digital and analog games from initial design to full public publishing. |
| **Employ** effective, engaging professional standards for crafting both video and analog games. |
| **Professional Practice** |
| **Develop** an online presence showcasing the ability to promote in-progress and developing game work. |
| **Create** and grow a network of professional and independent game contacts. |
| |
| **Video Production and Sound Design** |
| **Technique** |
| Execute technical requirements common to narrative and documentary video production such as professional camera work, lighting, and sound recording. |
| Perform professional quality recording, editing, processing, and mixing of voiceover, dialog/ADR, sound effects, Foley, ambience, and music |
| **Aesthetics** |
| Apply methods of effective storytelling in planning for execution of narrative or documentary films. |
| Employ methods of effective design for motion graphics and digital effects. |
| **Meaning** |
| Synthesize best practices of video pre-production, production and post-production into the successful completion of narrative or documentary films. |
| Evaluate films from multiple perspectives including film theory, history and traditions of digital media. |
| |
| **Web Design and Development** |
| **Technique** |
| **Execute** industry practices for web and mobile applications |
| **Synthesize** best practices for web design and development that pertain to both web and mobile applications |
| **Aesthetics** |
| **Evaluate** industry standards and techniques for web and application design. |
| **Demonstrate** a knowledge of common styling, accessibility, and coding practices for engaging experiences. |
| **Meaning** |
| **Apply** methods of effective web design and development through the creation of prototypes. |
| **Employ** effective, engaging professional standards web and mobile applications. |
| **Professional Practice** |
| **Develop** a portfolio to showcase applications in web and mobile development. |
| **Create** and grow a network of professionals. |

## Findings of Curriculum-Mapping

In the curriculum-mapping, when faculty rated the strength of the alignment of an assessment to a PLO, they could score it on a scale of 1-10 points. 1 meaning a very weak alignment, but still an alignment, and 10 meaning a very strong alignment. Over a total 61 courses, 3409.5 points were assigned by all faculty to various assessments when ranking their relevance to the ten MAS program-level learning outcomes.

It would be reasonable to expect a distribution of these total points to be distributed across the various academic levels in accordance with how many courses are offered at each level. In the table below, this 3409.5 number was broken down by distribution across academic level (Totals) and then compared to expectations based on the number of courses offered at each academic level (Ideal Distribution).

For example, there are five 100-level courses offered (Total Courses). That is 8.3% of the total MAS course offerings. The Ideal Distribution was determined to be the corresponding percentage of the total points: 8.3% (percentage of total MAS offerings) of 3410 (total points assigned rounded up from 3409.5) = 284 (Ideal Distribution). Then the deviation from this ideal distribution was calculated as the summed difference: 298-284=+14 (Deviation).

- Consequently, N100-level courses offer more than their share (14 points more) of the total outcome points.
- N400-level courses, 18 of the total courses offered, ranked number 1 by exceeding expectations by 52.
- N300-level courses ranked 4th by falling short of expectations by 79. This tells us that our N300 assessments need to be closely examined to determine where they can be better aligned with our PLOs.

| | All Years | N100's | N200's | N300's | N400's |
|---|---|---|---|---|---|
| Totals | 3409.5 | 298 | 969.5 | 1058 | 1075 |
| Ranking | | 2 | 3 | 4 | 1 |
| Ideal Distribution | | 284 | 966 | 1,137 | 1,023 |
| Deviation | | 14 | 3 | -79 | 52 |
| Total Courses | | 5 | 17 | 20 | 18 |

**Figure 3**

Another data point from the c-map was how the 3409.5 figure was disbursed across the 10 PLOs. The distribution is seen in the table below with the top five indicated in green and the bottom five indicated in red. The second numeric column indicates if it falls above or below the average of 341.

- As one might expect, the three highest scoring outcomes (4,6,9) are strongly associated with the logistics and execution of digital media production.
- The two lowest scoring outcomes (8,9) are more socially oriented and can be interpreted as outcomes most likely to align with DEI efforts.
- These results clearly speak to the need in the program for more socially oriented assessments that consider the societal impact of our practice and the diverse opinions associated with it.

| | Totals | 340.95 Ave |
|---|---|---|
| Understand digital media and its effective use as a form of communication. | 383 | 383 |

| | | |
|---|---|---|
| Communicate ideas effectively in written, oral, and visual form to a range of audiences. | 455 | 455 |
| Work effectively as a member of a team to achieve a common goal. | 292 | 292 |
| Analyze a problem, identify and evaluate alternatives, and plan an appropriate solution. | 457 | 457 |
| Evaluate media from multiple perspectives using the theories, concepts, and language of digital media with an appreciation for the history, theory, and traditions of digital media. | 290.5 | 290.5 |
| Demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. | 467 | 467 |
| Develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards. | 472 | 472 |
| Explain the impact of digital media on individuals, organizations, and society. | 155 | 155 |
| Acknowledge diverse opinions regarding professional, ethical, legal, and social issues with a global perspective. | 154 | 154 |
| Plan for continuing professional development with an appreciation of the need for lifelong learning. | 284 | 284 |

**Figure 4**

In the table below, the total points for each PLO were further broken down into the academic levels in which the various PLOs were addressed. Again, using an expected distribution based on an academic-level's percentage of total courses offered, we can see this time how each PLO performs per academic level. Green indicates above expectation, red below. For example, our 5 100-level courses are 8.3% of the total 61 undergrade courses offered. 8.3% of the 383 points ascribed to PLO#1 equals 31.8. Yet the faculty of the 5 100-level courses assigned 42 points toward PLO #1, and thus it exceeded expectations by more than 10 points.

Items of note for the data:

- N100s and N400s both beat expectations 6 times.
- Again, N300s performed the worst, only beating expectations three times.
- PLO #2 is the only PLO to outperform across more than 2 years. Other trends are hard to discern.
- An interesting item of note is that while N100s and N400s excel in PLOs #8 & 9, there are opportunities to embed an increased amount of social/DEI-oriented course activities in the N200 and N300-level courses.

| | | Totals | N100s | N200s | N300s | N400s |
|---|---|---|---|---|---|---|
| | | 61 courses | 5 (8.3%) | 17 (28.3%) | 20 (33.3%) | 18 (30%) |
| Understand digital media and its effective use as a form of communication. | | 383 | 42 | 136 | 94 | 111 |
| Expected Distribution | | | 31.8 | 108.4 | 127.5 | 115 |
| Communicate ideas effectively in written, oral, and visual form to a range of audiences. | | 455 | 41 | 130 | 135 | 149 |
| Expected Distribution | | | 37.8 | 128.8 | 151.6 | 137 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Work effectively as a member of a team to achieve a common goal. | | 292 | 9 | 77 | 110 | 96 |
| Expected Distribution | | | 24.3 | 82.7 | 97.3 | 87.6 |
| Analyze a problem, identify and evaluate alternatives, and plan an appropriate solution. | | 457 | 35 | 141 | 147 | 134 |
| Expected Distribution | | | 38 | 129 | 152 | 137 |
| Evaluate media from multiple perspectives using the theories, concepts, and language of digital media with an appreciation for the history, theory, and traditions of digital media. | | 290.5 | 34 | 93.5 | 88 | 75 |
| Expected Distribution | | | 24 | 82 | 96.8 | 87 |
| Demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. | | 467 | 33 | 117 | 163 | 154 |
| Expected Distribution | | | 39 | 132 | 155.5 | 140 |
| Develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards. | | 472 | 38 | 117 | 164 | 144 |
| Expected Distribution | | | 39 | 133.6 | 157 | 141.6 |
| Explain the impact of digital media on individuals, organizations, and society. | | 155 | 20 | 17 | 49 | 69 |
| Expected Distribution | | | 12.9 | 43.9 | 51.7 | 46.5 |
| Acknowledge diverse opinions regarding professional, ethical, legal, and social issues with a global perspective. | | 154 | 15 | 42 | 29 | 68 |
| Expected Distribution | | | 12.8 | 43.6 | 51.3 | 46.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Plan for continuing professional development with an appreciation of the need for lifelong learning. | | 284 | 31 | 99 | 79 | 75 |
| Expected Distribution | | | 23.6 | 80.4 | 94.6 | 85.2 |

**Figure 5**

Lastly, we considered the distribution of the 610 cited assessments across the four Components of Creative Expression. The ideal distribution was determined to be 122 (61 courses X 10 learning outcomes ÷ 5 Components and the NA category used when a faculty member did not cite an assessment for the PLO)

- To our surprise, the largest category was NA. At 195, that is nearly one-third of the total and indicates an enormous opportunity to develop additional assessments, specifically those that can address the five lowest ranking PLOs indicated above.
- As one might expect in a program that teaches the production of digital media, Technique ranks the highest, exceeding the ideal by 12.
- The other three components all scored below the ideal distribution, with Aesthetic notably 50 points below. This would clearly indicate the need for developing more assessments that primarily address aesthetic concerns, a critical aspect of digital media industries.

| | All Years | Technique | Aesthetic | Meaning | Professional | NA |
|---|---|---|---|---|---|---|
| Totals | 610 Total assessments | 134 | 72 | 108 | 101 | 195 |
| Ranking | | 2 | 5 | 3 | 4 | 1 |
| Ideal Distribution (rounded) | | 122 | 122 | 122 | 122 | 122 |
| Deviation | | 12 | -50 | -14 | -21 | 73 |

**Figure 6**

## Summary and Plans for Improvement

The feedback from PRAC 2019 cycle was most critical of the MAS program's ability and readiness to systematically assess courses at both the per course and program level. Our energy in creating these two assessment interventions was a direct result of that feedback.

With the early data from our PRAC summary 2021 report and the completion of the two assessment interventions in this report, the MAS program has straightforward evidence and direction to support:

- Increasing course rigor and course consistency across the program,
- Conversations regarding modernizing PLOs,
- Distributing assessments of PLOs more evenly across the undergraduate experience, and
- Identifying opportunities to increase the weight of the Components of Creative Expression that are not in alignment with expectations.

MAS now has two methodologies that promise to be able to both sustain and scale our assessments and self-reporting in future cycles.

Assessment Intervention #1 allows the program to scale the number of courses evaluated from the MAS core classes to the inclusion of specialization courses, and eventually all MAS course offerings. It also affords the program a way to share in course discussions framed in grades over several semesters *(issues with inflation)*. Lastly, this assessment provides a common protocol and vernacular with consistent measures. As adoption and understanding spreads across faculty, assessments shared across course sections with multiple faculty members (such as N100 and N499 Capstone) will become far easier to improve and make decisions on as a group.

Assessment Intervention #2 affords the MAS program a consistent protocol to regularly evaluate our course learning outcomes, their alignments to program learning outcomes, newly identified specialization level learning outcomes, and the components of creative expression.

The opportunity to align parallels between Assessment interventions 1 & 2 are in their infancy, but do already allow for check systems between both methodologies:

1. Assessment Intervention #1 visually shows faculty alignments of IUPUI+, MAS PLOs and student grade averages. This speaks to long term trends in student performance, and which IUPUI+ and MAS PLOs are not assessed at all in individual courses, specializations, or years in the program. Inclusion of student performance also shows faculty & peers variances in each course section's assessment of CLOs.
2. Assessment intervention #2 visually shows faculty perception, weighting, and alignment of their assessments in each course to MAS PLOs, Specialization Learning Outcomes, *sans* student performance.

In the next 3 years, the MAS program plans to: 1) review current MAS Program Learning outcomes, 2) expand the assessment intervention #1 to include specialization courses, 3) expand assessment intervention #2 to refine weighting of PLO assessment and Creative Components of Expression across program course offerings.

| **Planned Assessment Improvement Actions** | **Supporting Evidence** | **Est. Date of Completion** |
|---|---|---|
| Continue the adoption of best practices in TILTing of assignments in all MAS courses to combat grade inflation. | Grade Inflation (in Core Courses) *[Assessment Intervention #1]* | Fall 2024 |
| Develop protocol to consistently assess courses & capstone experiences with multiple sections that both honor faculty autonomy and prioritize student professional readiness. | Variance in N100 and N499 faculty Submissions *[Assessment Intervention #1]* | Fall 2023 |
| Expand Assessment Intervention #1 to MAS Specialization Courses | Missing connections to Program Learning Outcomes 1, 6, 7, 9 in Core Courses *[Assessment Intervention #1]* | Winter 2026 |
| Review Current MAS Program Learning Outcomes, Amend if Necessary | High negative deviation in 200 & 300 level courses to MAS PLOs *[Assessment Intervention #2]* | Summer 2023 |
| Address low CLO assessments aligned with MAS PLO's 8 & 9, specifically in 200 & 300 level courses | Low frequency of alignment to MAS PLOs 8 & 9 *[Assessment Intervention #2]* | Fall 2023 |
| Create a MAS-oriented tool for faculty to better align their CLO assessments in each course to poorly scoring alignments of IUPUI+ and MAS PLO's. | High negative deviation in 200 & 300 level courses to MAS PLOs *[Assessment Intervention #2]* | Spring 2024 |
| Create a MAS-oriented tool for faculty to better align their CLO assessments in each course to poorly scoring alignments of the Components of Creative Expression. | 195 of CLO's not attributed to any of the Components of Creative Expression. *[Assessment Intervention #2]* | Fall 2025 |
| Increase alignment of assessments in MAS courses towards Aesthetic Component of Creative Expression. | High negative deviation of Aesthetic Components of Creative Expression. *[Assessment Intervention #2]* | Spring 2023 |
| Adoption of Specialization Learning Outcomes (SLO's) | *Discovered during Assessment Intervention #2* | Summer 2023 |
| Create protocol to check consistency between reporting of Assessment intervention #1 & #2 | *No Data Yet* | Spring 2023 |