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## 2010-2021

# DigitalCommons Report

## Illinois Mathematics and Science Academy Library

This report represents a summary of activity from November 2010 thru November 2021

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## Summary

DigitalCommons@IMSA (DC) was created in furtherance of IMSA's 2008 Strategic Plan:

**Strategy 4:** *We will generate scholarship that discovers, integrates, applies and transfers knowledge produced by our work.*

DC supports IMSA's state legislative charge, connects the academy to a global community of scholars, and has become the home of the collected scholarship and creative works of the Illinois Mathematics and Science Academy faculty, staff, students, alumni, and their collaborators from around the world:

*DigitalCommons reflects the scholarly, innovative, and pedagogical culture of the Illinois Mathematics and Science Academy. The goal of this institutional portfolio is to share the intellectual output of IMSA and to increase visibility and impact through worldwide access.*

*This full-text, multimedia database links to open-access articles, conference proceedings, teacher resources, image and audio files, as well as provides references to books and other creative works not fully accessible online.*

*DigitalCommons furthers IMSA's mission "to ignite and nurture creative, ethical scientific minds that advance the human condition, through a system distinguished by profound questions, collaborative relationships, personalized experiential learning, global networking, generative use of technology and pioneering outreach."*

### Goals of DigitalCommons:

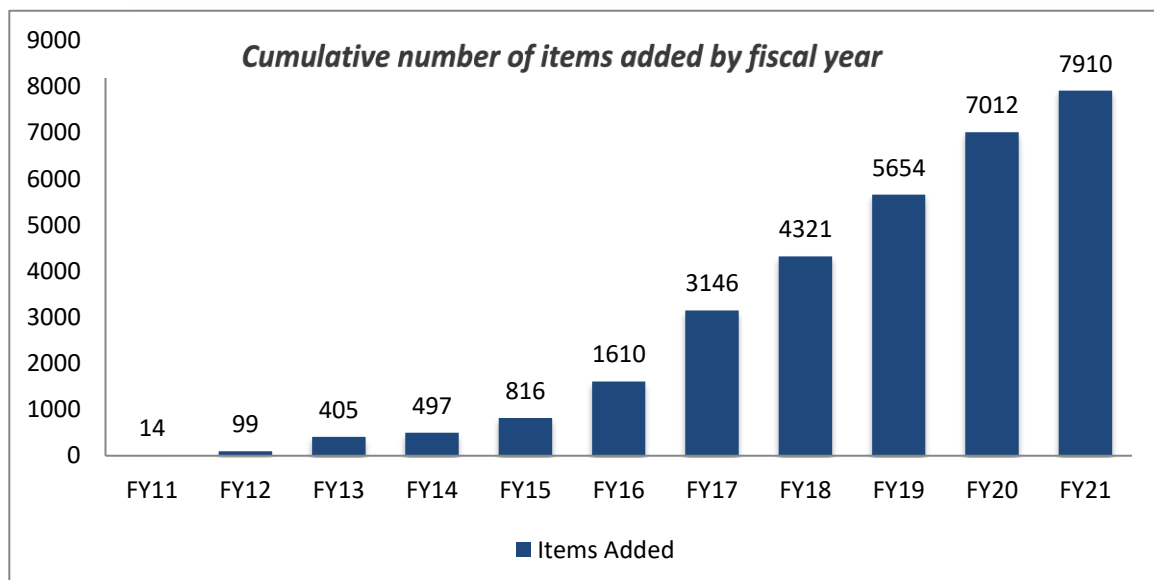
- Disseminate and promote academic, innovative, and creative achievements of the faculty, staff, and students of the Illinois Mathematics and Science Academy
- Ensure preservation of and persistent access to said work
- Provide a publishing platform for open access content from the Illinois Mathematics and Science Academy
- Document and record IMSA's history and progress
- Foster scholarly collaboration between colleagues

## Highlights

DigitalCommons currently contains work by: all of the academic programs, all of the academy centers, most of the academy departments, and work from every student beginning their sophomore year.

DC was launched on November 4, 2010 with a total of 14 published articles. Since then, it has grown to over 8,200 works that include, but are not limited to:

- Electronic versions of full text scholarly works
- Published, peer-reviewed literature
- Author's accepted manuscripts
- Books and book chapters
- Conference papers, posters, and presentations
- IMSA-hosted conference papers, posters, and presentations
- Creative works (art, photography, mixed media, music, and video recordings)
- Classroom/teacher resources: lesson plans, teaching units
- Lectures, keynotes, speeches, and talks
- Podcasts and webinars
- Working papers and technical reports
- Unpublished scholarly and creative works
- Unpublished studies and interviews



# Readership Map



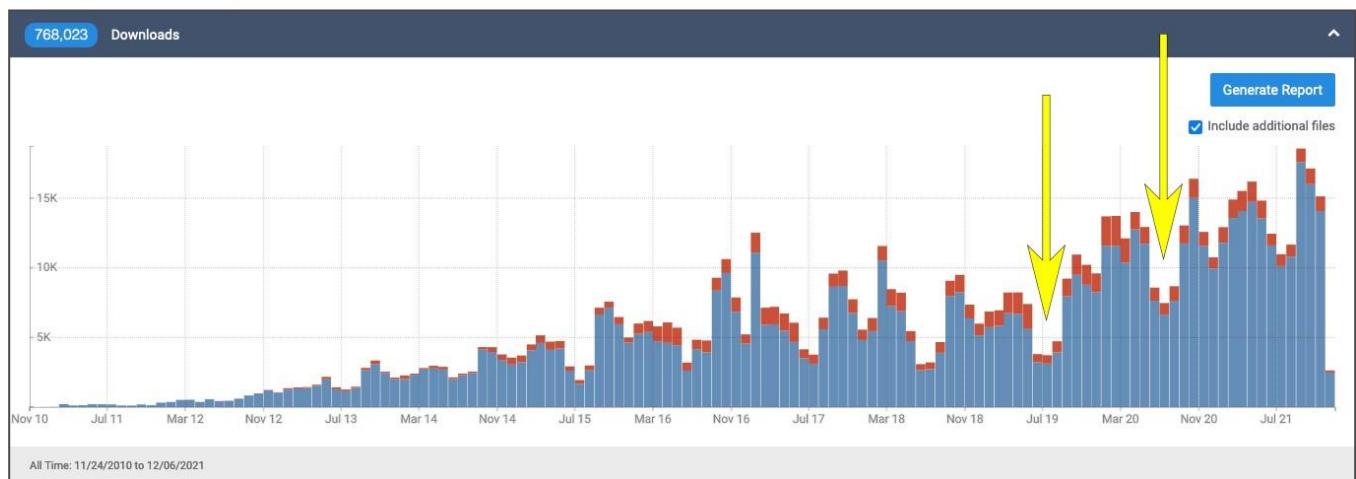
For the past eleven years, DigitalCommons has expanded its collection to 8,291 records, which have had more than 768,768 downloads since 2014. In addition to the full-text downloads, there have been a total of 2,594 streams and 210,213 meta-data page hits. Furthermore, the worldwide impact of DC is evidenced by the 215 countries who have downloaded one or more resources.

## Top 10 Countries with the most DC Downloads:

1. United States	-----	394,659
2. Australia	-----	17,304
3. United Kingdom	-----	16,553
4. Canada	-----	16,398
5. China	-----	16,368
6. Philippines	-----	15,492
7. India	-----	11,530
8. France	-----	9,442
9. Germany	-----	7,639
10. Singapore	-----	5,602

## By the Numbers

DigitalCommons has continued its exponential growth registering almost 155,700 full text downloads during FY21.



All Time: 11/24/2010 – 12/06/2021

The dip in each year's downloads, indicated by the yellow arrow, corresponds with June – August, when school is not in session

Cumulative full text downloads by 17,150 Institutions – *primarily within education*

- North Carolina Research and Education Network
- Georgia Department of Education
- NSW Department of Education
- Kentucky Department of Education
- Department of Education
- Indiana Department of Education
- Alabama Supercomputer Network
- University of Missouri - DBA the Missouri Research and Education Network
- University of Illinois
- Northwestern University

In March of 2019, IMSA's digital initiatives team experienced significant disruptions caused by the COVID-19 pandemic. As with many others, the DC staff shifted from working in the library to our basements and kitchens. We embraced new remote technologies and invented workarounds in order to continue to fulfill our mission to preserve and distribute research, scholarship, and creative works by IMSA's faculty, staff, and students.

## Top Collections

As with most institutional repositories, collections in DigitalCommons are located within the teams or departments that created them.

Many of these materials have also been auto-collected into featured collections that support IMSA's legislative charge, further its mission and institutional priorities, and engage with its alumni/ae.

The screenshot shows the DigitalCommons@IMSA website. At the top left is the IMSA logo (Illinois Mathematics and Science Academy) and the text "DigitalCommons@IMSA". Below the logo are navigation links: "Home", "About", and "My Account". The main content area is divided into a left sidebar and a main content area. The sidebar contains sections for "Browse" (Collections, Disciplines, Authors), "Search" (with a search box and "Search" button), "Author Corner" (Policies & Submission Guidelines, Author FAQ, Submit Research), "SelectedWorks" (Log into SelectedWorks), and "Links" (IMSA Library, Digital Commons Guide, Featured Exhibits). The main content area features a featured collection titled "(SIR) Student Publications & Research" with a link to published articles by Diana Gonzalez, Nilan Patel, Jerry Hong, Shivang Bhaskar, and their SIR Advisors Joseph Golab, PhD and James Kaduk, PhD. To the right of this text is a thumbnail image of a book cover titled "Powder Diffraction PDF". Below the featured collection is a "Browse Research, Scholarship and Creative Work" section with a "Follow" button and a list of categories: Departments, Centers, and Programs; Conferences and Events; Open Educational Resources; Archives and Special Collections; Equity and Excellence; Faculty & Staff Author Profiles; Student Works; and Student Portfolios. At the bottom of the main content area, there is a paragraph describing the repository's goal to share the intellectual output of IMSA and increase visibility and impact through worldwide access, and a statement that the repository furthers IMSA's mission to ignite and nurture creative, ethical scientific minds that advance.

FACULTY/STAFF PUBLICATIONS & RESEARCH – 84,504 total full-text downloads

*DigitalCommons@IMSA reflects the scholarly, innovative, and pedagogical culture of the Illinois Mathematics and Science Academy.*

And it includes publications & research from all of the academic programs, all of the academy centers, and most of the academy departments.

Top downloads are primarily within education, and include: Northwestern University • University of Illinois • Department of Education • Palo Alto Unified School District • University of Chicago

STUDENT WORKS – 33,653 total full-text downloads within these collections

*The primary role of the Academy shall be to offer a uniquely challenging education for students talented in the areas of mathematics and science.*

These collections represent some of IMSA’s best student work:

- [Student Publications & Research](#)
- [IMSAloquium Student Investigation Showcase](#)
- [Student Leadership Exchange \(SLX\)](#)
- Distinguished Student Work within Academic Programs/Academy Departments

Top downloads are primarily within higher education, and include: Northwestern University • University of Illinois • Stanford • Yale • University of Chicago • Southern Illinois University

TEACHING RESOURCES – 304,449 total full-text downloads within these collections

*The Academy shall also carry a responsibility to stimulate further excellence for all Illinois schools in mathematics and science.*

These collections contain open-access textbooks, manuals, teaching units, and lesson plans that have no access restrictions and can be remixed and adapted:

- [Open Educational Resources \(OER\)](#)
- [Professional Learning Day](#)
- Teacher Resources within Academic Programs/Academy Departments

Top downloads are primarily within K-12 education, and include: North Carolina Research and Education Network • Georgia Department of Education • Department of Education • Kentucky Department of Education • Indiana Department of Education

EQUITY AND EXCELLENCE – 16,753 total full-text downloads within these collections

*Vision 2022: By 2022, IMSA is a Recognized Global Leader and Catalyst in Equity and Excellence in STEM Teaching and Learning, Innovation and Entrepreneurship.*

The Equity and Excellence collection brings together a wide range of research and resources that are centered on the issues of racial justice and gender equity in education:

- [Publications & Research](#)
- [STEM Talks: three-part STEM Equity Series](#)
- [Diversifying STEM Think Tank](#)



- [Equity and Excellence Resources](#)
- [Diversity, Equity, and Inclusion Resources](#)

Top downloads are primarily within education, and include: University of California Irvine • University of Illinois • Department of Education • North Carolina Research and Education Network • University of Wisconsin Madison

ARCHIVES & SPECIAL COLLECTIONS – 46,048 total full-text downloads

*The Archives serves IMSA and the larger community by collecting, preserving and making available materials relating to the history and ethos of the Illinois Mathematics and Science Academy.*

IMSA's online [Archives & Special Collections](#) contain a significant portion of the material currently in the Physical Collection as well as content unique to DC:

- [IMSA Founders](#): *Materials by or about: Dr. Leon Lederman, Dr. Stephanie Pace Marshall, and former Illinois Governor James R. Thompson*
- [IMSA Alumni](#): *Doctoral Dissertations, Masters Theses, IMSA Speeches, and reunion materials*
- [Oral Histories](#): *Ongoing project, funded in part by a grant from the Hansen-Furnas Foundation*
- [Publications](#): *Annual Reports, Examples of Student Diversity, IMSA Math Journal, IMSA Profile*
- [Academics](#): *Course Catalogs, IMSAloquium Abstract Booklets, Intersession Catalogs*

Top downloads are within education and organization and include: Northwestern University • University of Illinois • Argonne National Laboratory • University of Chicago • Dow Jones & Company Inc.

## Feedback

Below are comments from users – also submitted to our feedback form.

*The Digital Commons at IMSA has made a substantial difference in teaching and learning across the academy. Students like seeing their work published on DC, and this encourages other students to do well in their classes, so that their work may be selected as an exemplary one. DC has reached across all disciplines at the academy and our Director has done extraordinary work in setting it up and promoting it. Teachers now have a place to go to plan curriculum or browse work in other disciplines, students have a platform for encouraging exemplary work and everybody benefits because singular methods to promote learning and tried and true unique assessment ideas are brought to light for all to see.*

– Faculty

*I will be teaching Comp. 1 and 2 for the first time next semester. These lessons are a wonderful resource. I can't wait to try them out. Thank you for sharing!*

– Teacher

*I am a new college instructor of English teaching rhetoric to my class. It was so wonderful to come across the writing boot camp that your English team did to help with my lessons. I have already downloaded and taught the lessons on writing effective enthymemes, rhetoric hooks, and topic sentences using headless paragraphs. Forthcoming I plan to teach the units on quotation analysis and writing simply. I intend to keep on eye on the digital commons to see if more materials get added due to their high caliber and applicability to my classroom.*

– College Instructor

*The Digital Commons platform is an easy (and important way) for educational leaders to share resources with teachers and pre-service teachers. This sharing method helps educators to acquire ideas and examples that can directly impact curriculum and instruction, which ultimately impacts students in the classroom. When conducting conference presentations, educational leaders can easily share presentation materials with conference attendees via a direct link to the corresponding Digital Commons publication. Additionally, Digital Commons provides educational leaders with the ability to be recognized for the work they are doing. Furthermore, Digital Common contributors can see through maps and consistent reporting the reach of their contributions within the State, across the Nation, and around the world.*

– Curriculum Writer

## Update on Current Projects & Goals

The DigitalCommons Advisory Team is instrumental in creating and maintaining documentation and establishing annual goals for DigitalCommons that align with IMSA's institutional priorities.

The current goals/objectives are:

1. 100% Student Participation;
2. 20% increase in Faculty/Staff profiles in the Expert Gallery;
3. Prepare content within DigitalCommons for annual data collection and an annual report; and
4. Add 500 new items to the "body of knowledge" - 70 items from this total to include DEI content.

### GOAL: NEW/UPDATED DOCUMENTATION / PUBLICATIONS & RESEARCH

*DigitalCommons is managed by IMSA's library. The Collection Policy and various procedures are reviewed and modified by the DigitalCommons Advisory Team, as needed:*

- [DigitalCommons Website](#) – update in 2021
- [DigitalCommons LibGuide Users Guide](#) – created in 2021
- [DigitalCommons Report: 2010-2021](#) – completed January 2022
- [DigitalCommons Documents](#) – ongoing
- [“DigitalCommons, IMSA's Institutional Portfolio: how inclusion is creating a win-win for stakeholders”](#)

### GOAL: INCREASED OPPORTUNITIES FOR STUDENT PARTICIPATION

*Initial opportunities for including student work are achieved through the annual Student Leadership Exchange (SLX). During junior and senior year, approximately 1/3 student wo through the annual Student Leadership Exchange (SLX). /3 of IMSA students also participate in the Student Inquiry & Research program and present their research annually through IMSAloquium, which has been online through DC since 2016.*

*In addition to conference presentations and Publications & Research, we have identified several new opportunities for students to include their work in DigitalCommons through:*

- Independent Study – encourages students to explore a topic with more freedom and flexibility, requiring a level of work similar to a senior elective
- Distinguished Work – external competition/award
- Exemplary Work – classroom projects, papers, and/or reports that exceed expectations
- Leadership roles – TedxYouth@IMSA, Peer-Multicultural Educators, Student Council
- Service Learning / Clubs – Hadron, IMSA Student Productions, Black Student Union
- IN2 – Intern Reports and Power Pitch

## GOAL: IMPROVED FACULTY/STAFF RECOGNITION

*Based on community feedback to the 2019 Scholarship & Innovation Committee:*

- IMSA social media posts that recognize academic achievement
- [Faculty/Staff Expert Gallery profiles](#)
- Leon Lederman Scholarship Award – IMSA’s formal annual recognition of faculty and staff scholarship.

## GOAL: ENHANCED DATA COLLECTION AND REPORTING

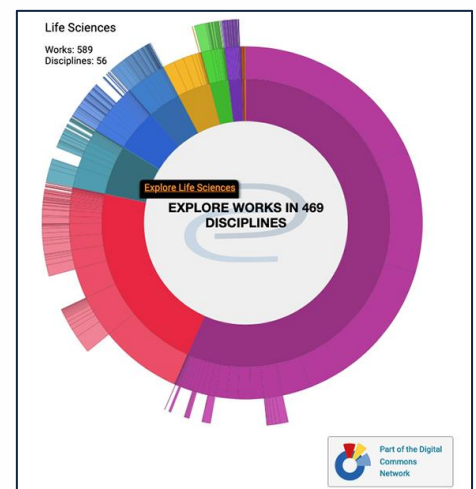
*DigitalCommons provides data for the annual State Appropriations, monthly statistics of full-text downloads and items added to the IMSA Administration and Board of Directors, and comprehensive reports for program reviews.*

*These steps are improving our ability to collect and communicate quantitative data:*

- Grouping and featuring collections by type – such as Open Educational Resources and Equity and Excellence
- Assigning at least one discipline to records
- Reactivating the Discipline Wheel

“The bepress Disciplines list is a three-tiered taxonomy of academic subject areas used to tag content and enhance discoverability. Open access articles published on Digital Commons sites that are tagged with disciplines are included in the [Digital Commons Network](#), where users can browse discipline specific scholarship using an intuitive interface.”

The Discipline Wheel provides researchers with an interactive way of discovering IMSA’s scholarly content, and allows them to browse through the wheel to access their research discipline. The Wheel provides visitors a clear visual overview of the breadth of research in the repository.



*These steps are improving our ability to collect and communicate qualitative data:*

- Implementing feedback forms at the collection and item level
- Community surveys

## Future Plans

While DigitalCommons has made great progress over the past eleven years, there is more work to be done. Under the direction of the DigitalCommons Advisory Team, IMSA will continue to build on its previous success by working towards the goals/objectives listed below:

The current goals/objectives are:

1. 100% Student Participation;
2. 20% increase in Faculty/Staff profiles in the Expert Gallery;
3. Prepare content within DigitalCommons for annual data collection and an annual report; and
4. Add 500 new items to the "body of knowledge" - 70 items from this total to include DEI content.

Additionally, the DigitalCommons Advisory Team seeks to continually improve upon DC documentation, identify new opportunities for publishing and presenting, and train faculty and staff to maintain their own collections. Lastly, both quantitative and qualitative data will be collected and analyzed to measure progress in achieving our goals and to inform future directions.