

Scholars of Distinction: Mathematics Program Overview

Program Criteria

Mathematics, for purposes of the Minnesota Scholars of Distinction, is defined by the knowledge and skills that must be exhibited by the applicant. Scholars must demonstrate keen interest in mathematics, a substantive base of mathematical knowledge and an understanding of mathematical methods. They are able to use mathematical methods to solve a substantive problem. It is not necessary to conduct original mathematical research.

Each applicant is expected to pursue the study of mathematics to develop understanding and effectively communicate a mathematical problem, its important aspects and solution, or documentation of significant effort toward a solution.

Assessment Elements

The assessment process will involve three reviewers from outside the scholar's school with mathematics expertise and an interest in the impacts mathematics has on society or both. Reviewers will use the established rubric to evaluate evidence of the academic foundations of mathematics the scholar has acquired and the rigor and impact of the problem that was addressed. (See rubric at end of document.)

Project Specifics

Applicants must submit a mathematics project demonstrating scholarly excellence and personal experience with a substantive problem.

Project Submission Format Requirements

The format for project submission includes: 1 inch margins, keyed in 10 or 12 point font (Calibri, Arial, Helvetica, Times or Times New Roman). The header on all pages other than the title page must include: title of the research project and authors name(s)

PowerPoint slides should be on individual pages

PowerPoint slides, journal entries, and charts should be readable but are not subject to font requirements

Each element of the project submission must be submitted in a separate file and labeled with the student's name and element, (e.g. Jane Smith, annotated bibliography, Jane Smith, project narrative).

The content must include the following items:

1. Personal Statement of one to two pages

- Include a description of the personal importance of the area of mathematics in terms of the scholar's past experience, present studies and future goals.
- Include a clear explanation of how and why the scholar chose this project problem and the research and actions taken to solve or make a significant effort toward a solution.

2. Annotated K-12 Resume

- Describe the pathways and experiences that have led the scholar to qualify as a Scholar of Distinction in Mathematics.
- List the educational experiences that prepared the scholar for excellence in mathematics, including specific coursework or training and independent studies.
- Identify the scholar's engagement with mathematics and the development of skills and understanding.
- Use a word processor and follow a resume format.

3. Annotated bibliography and one page Essay

- Prepare an annotated bibliography with a substantial number of readings that provide depth and breadth to the scholar's understanding of mathematics.
- Reflect on the readings and prepare a one page essay on how the readings influenced the project's intent and components.
- Use a word processor and follow a structured format.

4. Project Narrative

Narrative will demonstrate:

- Evidence of high-level knowledge and skills with mathematics or statistics through one or more of the following:
 1. An original written paper exploring an advanced mathematical or statistical concept which is above and beyond the typical high school mathematics curriculum. The paper must demonstrate both a mastery of high level concepts and an ability to communicate those ideas in an effective manner.
 2. A written paper detailing original research in abstract mathematics or statistics, including an overview of relevant background material, a summary of the new work and proof of its validity.
 3. A research project which uses advanced mathematical ideas or statistical analyses to reach conclusions about a scientific investigation or "real-world" mathematical problem. The project must involve work significantly above the typical high school curriculum and should be described in a written paper which includes an overview of the relevant background material and the methods used to solve the problem.

Narrative will display:

- An introduction that identifies the scholar's significant commitment, project's goal(s) and objective(s), challenges and successes.

- Key project components which are clearly organized and labeled.
- Evidence that the student's use of mathematics and statistics is valid.
- Correct use of precise mathematical and statistical terms and critical thinking to synthesize information and argue the merits of conclusions.
- A review of personal growth as well as the impact this project had on others.
- Support material used within narrative or referenced and used as addendum(s). These may include a power point, scanned photos, press notices, event programs and Web addresses that link the reviewer to student-prepared material.
- A self evaluation and any project logs, journals or reports.
- A conclusion with recommendations for others seeking to replicate the project.

5. Optional Presentation(s)

- Documentation of public presentation(s) to audience(s) outside the classroom or school environment. Presentations may be given for organizations with an interest or stake in the project, a civic group, peer education, etc. Documentation may include PowerPoint presentations, scripts, outlines, photos, programs and videos.
- Include evidence of feedback, review or evaluation and a personal reflection.

6. Testimonials

- Identify two individuals familiar with the scholar's research and actions related to the project.
- Obtain permission and submit the individuals' names, positions or titles, telephone numbers and a sentence on why each person was identified.
- Contact may be made with these individuals at the discretion of the reviewers.

Consultation

Consultation regarding program expectations and the criteria used to judge projects as provided in the rubrics is available on request. Mathematics Scholars of Distinction consultants are available through the University of Minnesota Talented Youth Math Program (UMTYMP) by contacting Scott Gilbert, seg@umn.edu (612) 625-2861.

Submission Process

1. Complete the [Intent to Apply](#).
2. View the Scholars of Distinction [Important Dates](#) document for the current award cycle timeline.
3. Students are required to arrange for an official, sealed high school transcript to be sent directly to scholarsofdistinction.MDE@state.mn.us or

Minnesota Department of Education
 Attn: Wendy Behrens
 1500 Hwy 36 West
 Roseville, MN 55113

Transcript must be a certified copy sent directly from the applicant's school and must be received by the project deadline.

4. If a transcript is not available contact, scholarsofdistinction.MDE@state.mn.us regarding alternative evidence demonstrating required knowledge base.
5. Complete the elements listed under "Project Specifics", clearly label documents and send in PDF format to scholarsofdistinction.MDE@state.mn.us. Zip files, Google documents and redirection and downloads to other sites will not be accepted.

Scholars of Distinction Mathematics Scoring Rubric follows this document.

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Criterion	Components reflect a level of DISTINCTION	Components reflect a level of HONORABLE MENTION	Components reflect a level of AVERAGE	Components do not qualify
<p style="text-align: center;">Personal Statement</p> <p style="text-align: center;">(1 to 2 pages)</p> <p style="text-align: center;">10 points</p>	<p>Clear and convincing articulation of importance of mathematics in terms of past experience, present studies and future goals.</p> <p>Scholar clearly and strongly demonstrates the development of skills over time. The work is articulate and shows a longstanding commitment to research in and application of leadership knowledge and skills.</p>	<p>Substantial evidence of importance of mathematics in terms of past experience, present studies and future goals.</p> <p>Scholar clearly demonstrates development of skills over time. The work is well-written, and shows a longstanding commitment to research in and application of leadership knowledge and skills.</p>	<p>Average and predictable evidence of importance of mathematics in terms of past experience, present studies and future goals.</p> <p>Scholar demonstrates the development of some skills over time. The work shows commitment to a weak or small research project.</p>	<p>Sketchy or undeveloped overview of importance of mathematics in terms of past experience, present studies and future goals.</p> <p>Scholar has not demonstrated the development of some skills over time. The work does not show commitment to researching the project or the skills to do so.</p>
<p style="text-align: center;">Annotated K-12 Resume</p> <p style="text-align: center;">10 points</p>	<p>Resume reflects education and experiences that have led the student to excel in mathematics research and application.</p> <p>Academic studies and activities have contributed to significant growth of mathematics knowledge and skills.</p> <p>Resume preparation demonstrates superior quality for a high school student.</p>	<p>Resume reflects education and experiences that have led the student to succeed in mathematics research and application.</p> <p>Academic studies and activities have contributed to substantial growth of mathematics knowledge and skills.</p> <p>Resume preparation demonstrates satisfactory quality for a high school student.</p>	<p>Resume reflects education and experiences that have led the student to engage in mathematics research and application.</p> <p>Academic studies and activities have contributed to mathematics knowledge and skills.</p> <p>Resume preparation demonstrates average quality for a high school student.</p>	<p>Resume reflects education and experiences that have led to mathematics research and application.</p> <p>Academic studies and activities have limited contribution to mathematics knowledge and skills.</p> <p>Resume preparation demonstrates poor quality for a high school student.</p>
<p style="text-align: center;">Annotated Bibliography</p>	<p>Extensive annotated bibliography of readings that support a broad and</p>	<p>Substantial annotated bibliography of readings showing a broad and</p>	<p>Average annotated bibliography of readings that shows a limited study of</p>	<p>Undeveloped annotated bibliography of readings that show a cursory study of</p>

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<p>and one page Essay</p> <p>10 points</p>	<p>comprehensive study of project components.</p> <p>The essay shows a superior understanding of the impact the research has had on scholar and others.</p> <p>The writing reflects superior quality for a high school student.</p>	<p>comprehensive study of project components.</p> <p>The essay shows a positive understanding of the impact the research has had on scholar and others.</p> <p>The writing reflects high quality for a high school student.</p>	<p>project components.</p> <p>The essay shows some understanding of the impact the research has had on scholar and others.</p> <p>The writing reflects average quality for a high school student.</p>	<p>project components.</p> <p>The essay shows a weak connection of the impact the research has had on scholar and others.</p> <p>The writing reflects poor quality for a high school student.</p>
<p>Project Narrative</p> <p>40 points</p>	<p>Significant evidence presented that the scholar knows and is able to use key concepts and apply mathematics as identified in the Project Narrative component of the Project Specifics.</p> <p>Clear and convincing evidence the scholar conducted a valid study including a comprehensive and concise summary of research and activities.</p>	<p>Strong evidence presented that the scholar knows and is able to use concepts and apply mathematics as identified in the Project Narrative component of the Project Specifics.</p> <p>Substantial evidence the scholar conducted a valid study including a comprehensive and concise summary of research and activities.</p>	<p>Evidence presented that the scholar knows and is able to use key concepts and apply mathematics as identified in the Project Narrative component of the Project Specifics.</p> <p>Some evidence of scholarly research and activities is provided and process is unclear.</p>	<p>Lack of evidence that the scholar knows and is able to use key concepts and apply mathematics as identified in the Project Narrative component of the Project Specifics.</p> <p>Evidence of research and activities provided were not organized to inform the reader.</p>
<p>Project Narrative</p> <p>10 points</p> <p>Project Narrative</p> <p>(Continue 10 point Value)</p>	<p>A superior approach to the project over an appropriate period of time.</p> <p>An innovative or creative project approach, content and methodology.</p> <p>Only relevant information and supporting materials were included and reliability was assessed.</p> <p>Thoughtful reflection on the process, future research and recommendations for others</p>	<p>A valid approach to the project over an appropriate period of time.</p> <p>An innovative or creative project approach, content and methodology.</p> <p>Relevant information and materials were included and reliability was assessed.</p> <p>Reflection on the process, future research and recommendations for others seeking to replicate are</p>	<p>A limited approach to the project over a short period of time.</p> <p>A narrow project approach, content and methodology.</p> <p>Limited relevant information and materials were included, but reliability may be an issue.</p> <p>Limited reflection and recommendations for others seeking to replicate the</p>	<p>A sketchy approach to the project over a short period of time.</p> <p>An ordinary project approach, content and methodology.</p> <p>Relevance of information and supporting materials was not apparent.</p> <p>Reflection and recommendations for others seeking to replicate were not</p>

Criterion	Components reflect a level of DISTINCTION	Components reflect a level of HONORABLE MENTION	Components reflect a level of AVERAGE	Components do not qualify
	seeking to replicate are included. Organization and writing reflects superior quality for a high school student.	included. Organization and writing reflects high quality for a high school student.	process are included. Organization and writing reflects average quality for a high school student.	included. Organization and writing reflects poor quality for a high school student.
Optional Project Presentation 15 points or see Project Narrative	Scholar made a public presentation , created a strong method to assess feedback received, and has reflected on the process with maturity and objectivity.	Scholar made a public presentation , created a satisfactory method to assess feedback received, and has reflected on the process with maturity and objectivity	Scholar made a public presentation , created a weak method to assess feedback received. Little reflection on the process was evident.	Scholar made a presentation with limited feedback. Little or no reflection on the presentation was evident.
Testimonials 5 points	Identification and contact information provided.	Identification and contact information provided	Identification and contact information was limited.	Identification and contact information was not provided.

Reviewer's Comments:

Level of Recommendation:

_____Project reflects a level of **DISTINCTION**

_____Project reflects a level of **HONORABLE MENTION**

_____Project reflects a level of **AVERAGE**

_____Project does not qualify for recognition