October 18, 2023

Dear AMATYC Delegate.

The 2023 Delegate Assembly will be held on Saturday, November 18th, 2023, 3:00 - 5:00 PM EST, 2:00pm to 4:00pm CST, 1:00pm to 3:00pm MST, 12:00 pm to 2:00pm PST virtually using the Zoom platform.

Attached are the 2023 Delegate Assembly Agenda and other materials for your careful review prior to our meeting. Please plan to arrive early to the meeting, check in with your regional vice president, and be in Zoom 30 minutes before the scheduled start time. You will access a Regional Zoom Link to check in, and then access a different Zoom link for the Delegate Assembly. The Delegate Assembly will start on the hour, so please check into your Zoom room at least ten minutes prior to the start of the Delegate Assembly. Be sure to have access to the attached packet of information during the Delegate Assembly.

This year the main items of business are reviewing reports from the President, the Treasurer, the Foundation, and updates to the AMATYC Standards.

Substitutes: According to the Bylaws, alternate delegates may be named by the regional vice president as the delegate replacing an affiliate or state/province delegate at the Delegate Assembly by notifying the AMATYC Secretary in writing and providing appropriate credentials in writing no later than 6 pm of the day prior to the start of the Delegate Assembly.

Motions: If you wish to submit a motion for consideration during the Delegate Assembly business meeting, please submit at this Smartsheet. Please submit the motion to me in advance of the Delegate Assembly meeting by email at laura.watkins@amatyc.org

Items for Discussion: As in previous years, the Delegate Assembly agenda includes open discussion at the end of the meeting. To the extent that time permits, this is an opportunity for delegates to express comments about issues related to AMATYC’s mission.

Thank you very much for your service to AMATYC in this important role. I am looking forward to seeing you on Zoom.

Respectfully,

Laura Watkins
President
I. Call to Order – 3:00 p.m. EST

II. Welcome and Introductions
   Parliamentarian and Timekeeper
   2022-2023 Executive Board Members

III. Announcement of Quorum
   Nancy Rivers

IV. Motion to Approve the Rules of Conduct

V. Motion to Approve the Agenda

VI. Motion to Approve the 2023 Minutes Review Committee

VII. 2022 Delegate Assembly Minutes (Informational item only)

VIII. Reports
   A. President
   Laura Watkins
   B. Treasurer
   Barbra Steinhurst
   C. AMATYC Foundation
   Kathryn Kozak
   D. Strategic Planning
   George Hurlburt
   E. Conference Site Selection
   George Hurlburt

X. Old Business
   A. Placement and Assessment Committee: Initial Placement of Students into the Mathematics Curriculum Position Statement is currently being revised on the Standard Timeline.

XI. New Business
   A. Motion for Content Standards Update
   B. Motion for Intellectual Development Standards Update
   C. Motion for Pedagogy Standards Update
XII. Items for Discussion – Open Microphone
Delegates are invited to bring forward for discussion or comments issues that are related to AMATYC’s mission and goals.

XIII. Announcements

XIV. Adjournment
AMATYC Mission Statement: The American Mathematical Association of Two-Year Colleges (AMATYC) mission is to provide high quality professional development, to advocate and collaborate at all levels, and to build communities of learners for all involved in mathematics education in the first two years of college. (Adopted by the Board on April 1, 2016)

AMATYC’s Vision: To be the leading voice and resource for excellence in mathematics education in the first two years of college. (Adopted by the Board on April 1, 2016)

AMATYC’s Tagline: Opening Doors Through Mathematics (Adopted by the Board on June, 2016)

AMATYC’s Core Values
Core Values represent core priorities, traits, or qualities in the organization's culture that are considered worthwhile. They are timeless and unchanging. (Alphabetical Order, Approved May 2006)

<table>
<thead>
<tr>
<th>Core Value</th>
<th>Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Excellence</td>
<td>Presenting a quality educational experience in mathematics that is responsive to the needs of all students while recognizing student achievement in mathematics as an essential life goal.</td>
</tr>
<tr>
<td>Access</td>
<td>Acknowledging the right of all students to experience learning mathematics in ways that maximize their individual potential.</td>
</tr>
<tr>
<td>Collegiality</td>
<td>Providing opportunities for networking and encouraging mutual respect for other mathematics professionals for the betterment of the mathematics teaching profession.</td>
</tr>
<tr>
<td>Innovation</td>
<td>Creating, developing, implementing, and redefining successful instructional strategies, curricula in mathematics, and classroom practices based on the research of how students best learn mathematics and how faculty best teach mathematics.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Safeguarding the qualities of honesty, sincerity, trustworthiness, global consciousness, and a code of sound moral professional principles.</td>
</tr>
<tr>
<td>Professional Development</td>
<td>Building expertise and exhibiting leadership in the teaching and learning of mathematics, enhancing personal growth, and improving teaching methods and effectiveness as a personally initiated life-long responsibility.</td>
</tr>
<tr>
<td>Teaching Excellence</td>
<td>Designing and implementing a dynamic mathematics curriculum, promoting the use of innovative and effective teaching strategies, assessing student learning outcomes in mathematics with appropriate methods, and creating a successful learning environment for all students.</td>
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</tbody>
</table>
AMATYC will be guided during the years 2018-2023 by this strategic plan consisting of the five priorities below and accompanying initiatives.

**Priority I: Advocate for mathematics educators and mathematics students.**

A. Expand the visibility of AMATYC.
B. Further a common vision by strengthening collaborations with other organizations.
C. Recruit and retain individuals from under-represented groups into AMATYC membership and leadership.
D. Attract and retain students into mathematics intensive fields, particularly students from under-represented groups.
E. Advance seamless course and program articulation.
F. Develop and maintain standards for mathematics education in the first two years of college.
G. Educate the public on the AMATYC IMPACT standards and other AMATYC or national initiatives.

**Priority II: Provide and promote professional development opportunities to faculty whose primary focus is mathematics in the first two years of college.**

A. Create year-round AMATYC opportunities for professional development utilizing various modalities.
B. Offer professional development focused on mentoring new faculty teaching mathematics in the first two years of college.
C. Enhance access to high quality professional development for all mathematics faculty.
D. Collaborate with other organizations to provide professional development opportunities.

**Priority III: Promote research on the teaching and learning of mathematics and statistics in the first two years of college.**

A. Encourage qualitative and quantitative research focused on student learning for a diverse range of learners.
B. Train and support faculty who are interested in conducting research and classroom research.
C. Pursue grants and other means of financial support for classroom research on teaching and learning.
D. Continue to improve instructional resources based on classroom research.
E. Advocate for the continued improvement of placement processes based on program assessment.
F. Assist faculty, departments, and colleges to institute innovative practices informed by research.
G. Disseminate resources and model practices for research-based teaching and learning.

**Priority IV: Improve mathematics and statistics curricula in the first two years of college.**

A. Seek to provide a strong and relevant mathematics curricular experience for all students.
B. Design and refine pathways for both STEM (Science, Technology, Engineering, and Mathematics) and non-STEM students.
C. Promote the appropriate instruction and assessment of curricula.
D. Encourage the appropriate use of technologies to enhance student learning.
E. Facilitate the communication of successful curricular innovations that improve student learning.

**Priority V: Build connections within communities of educators across regions, departments, and institutions.**

A. Enrich relationships with and provide support for AMATYC affiliate organizations.
B. Support and increase participation in AMATYC’s academic committees and AMATYC networks (ANets).
C. Extend opportunities for local, national, and international networking to those interested in mathematics in the first two years of college.
D. Promote a diverse community of mathematics educators which recognizes and welcomes the unique contributions of all participants.
BYLAWS OF THE
AMERICAN MATHEMATICAL ASSOCIATION OF TWO-YEAR COLLEGES (AMATYC)
Ratified July 2010
Last Updated November 2021

Article I  Name

The name of the association shall be the American Mathematical Association of Two-Year Colleges, Incorporated (AMATYC).

Article II  Objectives

Section 1  The American Mathematical Association of Two-Year Colleges, Incorporated is a non-profit, educational association.

Section 2  The objectives of AMATYC are the following:

A. Encourage the development of effective mathematics programs

B. Provide a national forum for the exchange of ideas

C. Develop and/or improve the mathematics education and mathematics related experiences of students in two-year colleges

D. Coordinate activities of affiliated organizations on the national level

E. Promote the professional welfare and development of its members.

Article III  Membership

Section 1  Membership Categories

Members must complete the proper forms and pay the established dues. Membership in AMATYC shall be restricted to the following:

A. Regular membership: individual, full-voting members, with one or several subcategories determined by the Executive Board, with dues and levels of benefits determined by the Executive Board.

B. Associate membership: individual, non-voting members, with one or several subcategories determined by the Executive Board, with dues and levels of benefits determined by the Executive Board. Associate members must not also be a full- or part-time teacher, and must be endorsed by a regular member.

C. Institutional membership – A class of non-individual, non-voting memberships
associated with any college, university, learning center, publisher, manufacturer, or similar entity that supports the purposes of the association. Dues and levels of benefits determined by the Executive Board.

Section 2 Membership Privileges

A. A regular member has the right to vote, hold elected office, be appointed to leadership positions, nominate candidates for office, serve on committees as a voting member, and be appointed as a delegate in the Delegate Assembly.

B. Associate members have the right to nominate candidates for office and serve on committees, but do not have the right to vote, hold elected office, be appointed to leadership positions, or be appointed as a delegate in the Delegate Assembly.

C. Individuals who are eligible for an associate membership may choose to complete the proper forms and pay the established dues to become a regular member to obtain all the privileges of a regular member.

D. The representative of an institutional member has the right to nominate candidates for office, but does not have the right to vote, hold elected office, be appointed to leadership positions, serve on committees as a voting member, or be appointed as a delegate in the Delegate Assembly, unless that individual is also a regular member of the association.

Section 3 Membership Year

The membership year shall consist of twelve months. For new members, the membership beginning date shall be the day the dues are paid.

Section 4 Dues

A. Annual membership dues are paid by all members, except lifetime members.

B. Annual regular AMATYC membership dues are set every two years by applying the Consumer Price Index - Urban Consumers CPI-U for the last two consecutive years that begin with an even-numbered year to the current dues and rounding up to the nearest whole dollar. This adjusted rate is set at the Spring Executive Board Meeting in odd-numbered years, with the change taking place on July 1 of the following even-numbered year.
C. In the event that there is a need for a change other than the calculated rate, as determined in Article III.4.B., the new rate must be brought to the Delegate Assembly prior to the change taking effect for approval.

Article IV  Affiliated Organizations

Section 1  Any organization interested in affiliating with AMATYC must recognize AMATYC as a prime national organization concerned with the first two years of college mathematics instruction. This is done by voting for affiliation with AMATYC. Applications for affiliation must be approved by the AMATYC Executive Board.

Section 2  An affiliated organization has the following responsibilities:

A. The membership lists of the organization shall be forwarded to the appropriate AMATYC Regional Vice-President by June 30 in even-numbered years.

B. Membership in AMATYC should be encouraged for all the affiliate's members.

C. Each affiliate organization will appoint AMATYC members to serve as affiliate delegates to the Delegate Assembly as discussed in Article VII.

Article V  Elected Officers

Section 1  The elected officers of AMATYC shall be called the Executive Board and shall be the national officers: a President, President-Elect, Immediate Past President, Treasurer, and Secretary, and the regional officers, a Northeast Regional Vice-President, Mid-Atlantic Regional Vice-President, Southeast Regional Vice-President, Midwest Regional Vice-President, Central Regional Vice-President, Southwest Regional Vice-President, Northwest Regional Vice-President, and West Regional Vice-President.

Section 2  Only regular members are eligible to hold elected office.

Section 3  Terms of Office

A. The term of office for all elected officers, except for the Treasurer, is two years; beginning on January 1 in even-numbered years and ending on December 31 in the next odd-numbered year. The term limit for all officers, except for the President-Elect, President, Immediate Past President, and Treasurer, is three full successive elected terms in the same office.

B. The term limit for the President-Elect, President, and Immediate Past President is one full elected term in the same office. The President-Elect automatically succeeds the President at the end of the President's term or when the President leaves office permanently. The President automatically succeeds the Immediate Past President at the end of the President's term. The Immediate Past President may not be elected as President-Elect.
C. The term of the office for the Treasurer is four years, beginning on January 1 in even-numbered years and ending on December 31 in the second subsequent odd-numbered year. The term limit for the Treasurer is two full successive elected terms in that office.

Section 4  Duties of elected officers

All elected officers shall promote and coordinate the activities of the association, perform all duties according to policy, and perform all other duties that regularly pertain to the office. Specific duties of each office are as follows:

A. President:

1. Prepare the agenda for all association, Delegate Assembly, and Executive Board meetings.

2. Preside at all general meetings of the association, the Delegate Assembly, and the Executive Board.

3. Act as ex-officio member of all committees except the Nominating Committee.

4. Nominate, for approval by the Executive Board, the chairperson of all committees, except the Nominating Committee, Strategic Planning Committee, and Organizational Assessment Committee.

5. Appoint the chairs of ad hoc committees and task forces.

6. Appoint an acting chairperson of a committee when a vacancy occurs.

7. Appoint Special Appointees to perform duties as designated with approval of the Executive Board.

8. Meet with the Executive Directors and/or Presidents of other organizations who share similar concerns and interests to discuss items of mutual benefit and to establish a working relationship with them.

B. President-Elect

1. Act as president in the absence of the President.

2. Serve as the chairperson of the Strategic Planning Committee and the Organizational Assessment Committee.

3. Maintain a policy and procedures manual in conjunction with the Secretary and the AMATYC Office.

C. Immediate Past President

1. Chair the Nominating Committee.

2. Administer the election of officers.
D. Secretary

1. Keep an accurate, permanent record of the proceedings of meetings of the association, Delegate Assembly, and Executive Board.

2. Maintain updated lists of delegates and affiliate presidents.

3. Furnish agendas and minutes of all meetings to the appropriate people and ensure that the official minutes of the organization are securely archived.

4. Assist the President-Elect in maintaining a policy and procedures manual.

E. Treasurer

1. Ensure that all financial records, funds, receipts, and disbursements of the association are accurately maintained.

2. Present a written financial report at each regular business meeting and each Executive Board meeting.

3. Certify the size of the membership by region and category.

4. Prepare an annual organizational budget and present it to the Executive Board for approval at the fall meeting.

5. Obtain approval of the Executive Board or designee for expenditures that exceed budgeted amounts.

6. The outgoing Treasurer will complete the financial responsibilities pertaining to the conference at the end of the term of office.

F. Regional Vice-Presidents

1. Serve as the liaison between AMATYC and its affiliated organizations.

2. Appoint state/province delegates per Article VII.

3. Serve as a member of the membership committee. One Regional Vice-President shall serve as chair.

4. Recruit and retain members within their regions.

Section 5  Elections

The Executive Board shall conduct elections for officers in each odd-numbered year. Each regular member as of June 30 of that year shall be eligible to vote. Elections shall be by secret ballot. Announcement of the dates, format, and candidates of the election shall be made in writing or electronically to the membership at least 30 days prior to the beginning of the vote. Candidates who receive a plurality of the votes for a particular office shall be elected. If the number of votes for two candidates for the same office are tied, then a random
process shall be used to determine the winner.

Section 6 Vacancies

In the event that an officer other than the President, President-Elect, or Treasurer leaves office before the expiration of the regular term, the president, with the approval of the Executive Board, shall appoint a replacement for the remainder of the term. A vacancy in the office of President-Elect shall be filled by a special election following procedures established by the Executive Board. In the event that the Treasurer leaves office before the expiration of the regular term, the President, with the approval of the Executive Board, shall appoint a replacement until the next regularly scheduled election, regardless of whether this election falls on the four-year cycle for election of a Treasurer. The newly elected Treasurer would serve a full four-year term and this four-year term will form the basis for future Treasurer terms and elections.

Article VI Executive Board

Section 1 The elected officers shall serve as the Executive Board and are responsible for conducting the affairs of the association.

Section 2 Duties of the Executive Board

A. Approve the chairperson of each committee, except the Nominating Committee, Strategic Planning Committee, Organizational Assessment Committee, ad hoc committees, and task forces.

B. Recommend dues changes to the Delegate Assembly per Article III.4.

C. Recommend bylaw changes to the Delegate Assembly.

D. Select cities and dates for the annual conference.

E. Approve the annual budget.

F. Appoint special committees as needed to carry out the purposes of the association.

G. Make special appointments for persons to perform duties as designated.

H. Authorize a designated officer or officers, agent or agents of AMATYC, in addition to the officers so authorized by these bylaws, to implement and oversee, on behalf of AMATYC, a project, program or activity conducted jointly by AMATYC and one or more outside entities, to be called a partnership. This partnership is approved by the AMATYC Executive Board. Such authority must be in writing and be confined to specific instances as outlined in a partnership agreement which is approved by the Executive Board and signed by AMATYC and the partnership entity.

I. Perform all other duties according to policy.

J. Perform all other duties that are necessary for the functioning of the association.
Section 3 A majority of the members of the Executive Board shall constitute a quorum to enact the business of AMATYC. This majority must include at least two of the national officers.

Section 4 Regular meetings of the Executive Board may be called by the President or seven members of the Executive Board two of which must be national officers. Written or electronic notification of all regular meetings must be given to all Executive Board members at least 30 days prior to the start of the meeting. Announcements of regular Executive Board meetings must be published on the AMATYC website at least two weeks prior to the beginning of the meeting. At least two regular meetings must be held annually, one during the spring and a second during the fall.

Section 5 Action between Regular Meetings

A. In circumstances as determined by the President or seven members of the Executive Board, at least two of which are national officers, business may be conducted between regular meetings of the Executive Board by means of mail, fax, email or conference calls. The same quorum that applies to regular meetings is required at these meetings to conduct the business of AMATYC.

B. All actions resulting from a mail, fax, email or conference call vote shall be documented, distributed, and archived by means of a report from the Secretary in the Executive Board minutes of the regular meeting that takes place immediately following the action.

C. Written or electronic notification of all proposed actions presented between regular meetings must be given to all Executive Board members at least 72 hours before discussion or voting occurs.

Article VII Delegate Assembly

Section 1 The association shall have an annual business meeting (Delegate Assembly) in conjunction with its annual conference. Notice of the Delegate Assembly meeting shall be publicized in writing or electronically at least one month in advance.

Section 2 The Delegate Assembly shall be composed of delegates who are regular members of AMATYC as follows:

A. State/Province Delegates

1. There shall be two state/province delegates from each state and province, appointed for a term of two years by the appropriate regional vice president. States and provinces with more than 50 regular individual members of AMATYC, are permitted one additional state/province delegate for each 50 regular individual members of AMATYC or fraction thereof above 50, determined by each member’s preferred mailing address. The count of regular individual members of AMATYC will be done on June 30 of even-numbered years.
2. Terms of state/province delegates shall commence on July 1, or date of appointment, whichever is later, and terminate on June 30, in odd-numbered years.

3. An alternate delegate from the same state/province may be appointed to serve as proxy in place of a state/province delegate who is unable to attend the Delegate Assembly.

B. Affiliate Delegates

1. Each affiliate president, who is also a regular AMATYC member, in office at the time of the Delegate Assembly is a delegate to the Delegate Assembly to represent their affiliate organization. A proxy cannot replace an affiliate president delegate.

2. Each affiliate organization may appoint one additional affiliate delegate. Term of appointment will be determined by the affiliate.

3. An alternate delegate from the same affiliate may be appointed to serve as proxy in place of an affiliate delegate who is unable to attend the Delegate Assembly.

C. Each Executive Board officer is a delegate.

D. Each AMATYC past president is a delegate.

E. Each AMATYC academic committee chair is a delegate.

F. Additional delegates to represent countries not specified in Section XI may be appointed by the Executive Board.

G. No delegate at the Delegate Assembly is entitled to more than one vote.

H. Regional Vice-Presidents shall submit a list of affiliate and state/province delegates to the AMATYC Secretary no later than thirty (30) days prior to the start of the Delegate Assembly.

I. Alternate Delegates may be named by the Regional Vice-President as the delegate replacing an affiliate or state/province delegate at the Delegate Assembly, by notify the AMATYC Secretary in writing and providing appropriate credentials in writing no later than 6 pm of the day prior to the start of the Delegate Assembly.

Section 3 The Delegate Assembly’s responsibilities are to:

A. Vote on all dues changes as submitted by the Executive Board, in accordance with Article III.4.C.

B. Vote on bylaw changes submitted to the Delegate Assembly.

C. Present written recommendations to the Executive Board to be considered at the following Executive Board meeting.
D. Approve position statements as presented by the Executive Board per Article IX.

Section 4 Each state/province delegate shall perform the following duties:

A. Represent that delegate’s state/province at the Delegate Assembly meeting at the annual conference.

B. Keep the Regional Vice-President abreast of the activities and concerns of members from the delegate’s state.

C. Assist the Regional Vice-President in promoting membership and activities for AMATYC in the state/province.

D. Perform all duties according to policy.

Section 5 Each affiliate delegate shall perform the following duties:

A. Represent the affiliate organization at the Delegate Assembly meeting at the annual conference.

B. Keep the Regional Vice-President abreast of the activities and concerns of members from the delegate’s affiliate.

C. Assist the Regional Vice-President in promoting membership and activities for AMATYC at the affiliate meetings.

D. Perform all duties according to policy.

Section 6 The number of delegates necessary for a quorum in the Delegate Assembly shall be twenty-five (25) percent of the number of delegates identified in Section 2 of this Article.

Article VIII Committees

Section 1 Types of committees

A. Committees fall into three general categories: Administrative Committees, Academic Committees, and Ad Hoc Committees and Task Forces. Administrative and academic committees are standing committees.
B. All members of association committees must be AMATYC members. Non-AMATYC members may participate in academic committee work in a nonvoting capacity.

Section 2 Administrative Committees

A. Purpose

Administrative committees support the general functioning of the association.

B. Established administrative committees

The following administrative committees are established by these bylaws.

1. Nominating Committee
2. Membership Committee
3. Strategic Planning Committee
4. Finance Committee
5. Foundation Board
6. Organizational Assessment Committee
7. Professional Development Committee

C. Objectives of the established administrative committees

The general objectives of each of the committees in part B are the following:

1. The Nominating Committee shall establish election procedures and, consistent with policy and Executive Board direction, recommend a slate of nominees for Executive Board approval.

2. The Membership Committee shall develop and implement strategies to solicit new members and retain existing members.

3. The Strategic Planning Committee shall develop and publish the AMATYC Strategic Plan.

4. The Finance Committee oversees the budget development and serves in an advisory capacity to the Treasurer and Executive Board.

5. The Foundation Board shall raise and disburse funds to support the mission of AMATYC.

6. The Organizational Assessment Committee shall coordinate the planning and implementation of assessment of AMATYC programs and activities.
7. The Professional Development Committee shall monitor, coordinate, and evaluate AMATYC's professional development efforts in order to provide the membership with high quality opportunities and a wide breadth of activities.

D. Other Administrative Committees

Other administrative committees may be created and discharged as needed by the Executive Board to support the general functioning of the association.

Section 3 Academic Committees

A. Purpose

Academic committees support the general professional purposes and mission of the association, as stated in Article II and in the association's mission statement.

B. Establishment of academic committees

Academic committees are established and discharged by the Executive Board. Their designations and specific purposes will change as the needs of the association change. Each academic committee shall have a chair, nominated by the President and approved by the Executive Board.

C. Duties of an Academic Committee Chairperson

The chairperson of each academic committee shall perform the following duties:

1. Chair the meetings of the academic committee.
2. Coordinate the activities of the academic committee.
3. Prepare the annual budget of the academic committee and submit it to the Treasurer according to the established schedule.
4. Prepare reports of the academic committee's activities and submit them to the President according to the established schedule.
5. Perform all duties according to policy.
6. Perform all other duties necessary for the academic committee to function and accomplish its goals.

Section 4 Ad Hoc Committees and Task Forces

A. Establishment

Ad hoc committees and task forces may be approved and formed by the Executive Board and/or Delegate Assembly when deemed necessary by those entities.
B. Purpose and duration

The purpose of ad hoc committees and task forces shall be determined when they are established. A termination date shall be designated at the time of establishment.

Article IX  Position Statements

Section 1  Purpose of Position Statements

Position statements represent a declaration by the organization on issues of interest to two-year college mathematics educators, and may be initiated by an academic committee, an affiliate organization, or an individual AMATYC member.

Section 2  Process for Development of Position Statements

The process for development of a position statement must conform to the following guidelines.

A. A proposal for a position statement must be referred to, or begin with, an appropriate academic committee or task force created by the Executive Board. That committee or task force chooses to pursue or not to pursue the statement. The committee or task force is responsible for development of a proposed position statement.

B. A schedule for the process of review of proposed position statements by committees, Executive Board, and Delegate Assembly, shall be established by the Executive Board. This schedule must provide timely notice to all AMATYC members of the proposed statement.

C. The chairperson of an academic committee or task force shall submit the draft position statement to the Executive Board for its review and approval.

D. If endorsed by the Executive Board the proposed position statement shall be submitted to the Delegate Assembly for review and approval.

E. In the absence of Executive Board endorsement, the Delegate Assembly may vote to review a proposed position statement by a vote of 2/3 of the delegates at the Delegate Assembly, provided that timely notice was provided to all AMATYC members.

F. If approved by the Delegate Assembly the proposal becomes an AMATYC position statement.

Article X  Removal From Office

Section 1  Executive Board members may be removed from office by a 3/4 vote of the Executive Board, with or without cause, if the action is deemed to be in the
best interest of the association.

Section 2 Persons appointed to positions within the association may be removed from those positions by a 2/3 vote of the Executive Board.

Section 3 The affirmative vote of the Executive Board for removal of a person from an appointed or elected position is an authorization for the President to take the steps necessary for that removal.

Article XI AMATYC Regions

Section 1 The AMATYC organizational membership shall be divided into the regions as follows:

Region 1 – Northeast:
Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont; New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward Island, Quebec

Region 2 – Mid-Atlantic:
Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia

Region 3 – Southeast:
Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee; Puerto Rico, Virgin Islands and other Caribbean Islands

Region 4 – Midwest:
Illinois, Indiana, Kentucky, Michigan, Ohio, Wisconsin

Region 5 – Central:
Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; Manitoba, Saskatchewan

Region 6 – Southwest:
Arizona, Arkansas, New Mexico, Oklahoma, Texas; Mexico

Region 7 – Northwest:
Alaska, Idaho, Montana, Oregon, Washington, Wyoming; Alberta, British Columbia, Northwest Territories, Nunavut, Yukon Territory, other International Locations

Region 8 – West:
California, Hawaii, Nevada, Utah; Pacific Islands

Section 2 A member’s region is determined by the location of the individual’s primary professional contributions related to AMATYC’s objectives (Article II).
Article XII  Parliamentary Authority

The rules contained in the current edition of Robert’s Rules of Order, Newly Revised shall govern AMATYC in all cases in which they are applicable and in which they are not inconsistent with these bylaws.

Article XIII  Amendment

These bylaws may be amended by the delegates at the Annual Delegate Assembly by a two-thirds (2/3) vote of those delegates voting, provided that written or electronic notification of the proposed text changes and the clear purpose of the amendment has been sent to all delegates at least thirty (30) days prior to the Delegate Assembly and a hearing on the proposed changes is convened no sooner than ten (10) days after this notification and at least a day before the beginning of the Delegate Assembly. Proposed amendments to these bylaws may be presented to the Executive Board by any member, and shall be processed by the Executive Board, for approval by the Delegate Assembly.

Article XIV  Dissolution

In the event of dissolution, the assets and property of the corporation remaining after payment of expenses and the satisfaction of all liabilities shall be distributed as determined by the Executive Board or as may be determined by a court of competent jurisdiction upon application of the Executive Board, for the non-profit purposes of the corporation and/or to such charitable, literary, and educational organizations as shall qualify under Section 501c3 of the Internal Revenue Code of 1954, as amended. Any of such assets not so distributed shall be disposed of for such purposes as directed by a Justice of the Supreme Court of the State of New York or such other court having jurisdiction over the corporation.

- Approved at the Delegate Assembly, November 15, 2014
- Article VII Delegate Assembly revised and approved at Delegate Assembly November 16, 2019
- Article III Membership and XIII Amendment revised and approved at Delegate Assembly November 6, 2021
American Mathematical Association of Two-Year Colleges

DELEGATE ASSEMBLY MINUTES

December 3, 2022

3:00 – 3:23 pm (EST)

Via Zoom

I. Call to Order

President Laura Watkins called the meeting to order at 3:00 pm (EST).

II. Welcome and Introductions

President Watkins welcomed the delegates and announced that Donn King was appointed as Parliamentarian and Past President Kathryn (Kate) Kozak as Timekeeper. President Watkins introduced the members of the 2022 – 2023 AMATYC Executive Board.

- Laura Watkins – President
- George Hurlburt– President-Elect
- Kathryn Kozak – Past President
- Nancy Rivers – Secretary
- Barbra Steinhurst – Treasurer
- AJ Stachelek – Northeast Vice President
- Dennis Ebersole – Mid-Atlantic Vice President
- Alvina Atkinson – Southeast Vice President
- Brandon Bartley – Midwest Vice President
- Dale Johanson – Central Vice President
- Shannon Ruth – Southwest Vice President
- Sarah Pauley – Northwest Vice President
• Eddie Tchertchian – West Vice President

III. **Announcement of Quorum**

Secretary Nancy Rivers announced a delegate count of 96 out of 168 delegates and stated that there was a quorum.

IV. **Approval of the Rules of Conduct**

Without objection the Rules of Conduct (page 22 of the Delegate Assembly Packet) were approved.

V. **Approval of the Agenda**

The Agenda is included in the Delegate Assembly Packet (page 3 – 4).

Without objection the Agenda (pages 3 – 4 of the Delegate Assembly Packet) was approved.

VI. **2021 Delegate Assembly Minutes**

President Watkins reported that the minutes from the 2021 Delegate Assembly (beginning on page 23 of the Delegate Assembly Packet) held virtually were reviewed, revised, and approved by the 2021 Delegate Assembly Minutes Approval Committee, chaired by Sophia Georgiakaki, 2020 – 2021 Vice President, Northeast.

VII. **Approval of the 2022 Minutes Review Committee**

Information on the Delegate Assembly Minutes Approval Committee is in the Delegate Packet (pages 61 – 63).

**Motion:** That the membership of the Minutes Review Committee for the 2022 AMATYC Delegate Assembly be approved as announced. (Attachment A)

The 2022 Delegate Assembly Minutes Approval committee consists of:

• Dale Johanson, Central Vice President, Chair
• Alexander Atwood, State Delegate
• Alberto Isassi, Affiliate Delegate
• Christine Mirbaha, Affiliate President
• Nancy Sattler, AMATYC Past President (Marilyn Mays, alternate)
• Nancy Rivers, 2022 – 2023 AMATYC Board Secretary, will serve in an ex officio capacity.

Without objection the 2022 Delegate Assembly Minutes Approval Committee was approved as presented.

VIII. Reports

A. President’s Report

The report was received in the Delegate Assembly packet (pages 64 – 65).

Additional items to include:

- There were 711 registrants for the in-person component of the conference, including guests. For the virtual component of the conference the total registration was an additional 68.

B. Treasurer’s Report

The report was received in the Delegate Assembly packet (pages 66 – 72).

C. AMATYC Foundation

The report was received in the Delegate Assembly packet (pages 73 – 74).

D. Strategic Planning

The 2018 – 2023 Plan was received in the Delegate Assembly packet (pages 75 – 93).
E. Conference Site Selection

There was a site selection this year due to relocating the 2026 AMATYC Annual Conference. As noted in the report, we are currently in negotiations with one of the sites and hope to have a contract in place soon. (page 94 of the Delegate Assembly packet).

IX. Committee Reports

Due to comments from delegates at the 2021 Delegate Assembly and at the request of the AMATYC Executive Board, a committee was formed to survey the delegates about the modality of holding the delegate assembly moving forward. The results of that survey are available in the Delegate Assembly community in myAMATYC. This committee is chaired by Southeast Vice President Alvina Atkinson.

X. Old Business

During the 2021 Delegate Assembly, the delegates approved the position statement titled Initial Placement of Students into the Mathematics Curriculum. The delegates indicated at that time that the position statement should be referred back to the Placement and Assessment ANet for additional refining and the inclusion of references that support the espoused position. The ANet is currently working on the position statement and is following the standard position statement timeline. Hence there is no report at this time.

XI. New Business

There was no new business.

XII. Items for Discussion

- Jennifer Ackerman, Innovative Teaching and Learning ANet Chair – Consider changing the language and year limitation for eligibility for Project ACCEESS to a more generic “early in their teaching career”.
- Helen Burn, Mathematics Pathways ANet Chair – concern with the length of the conference – as an ANet chair travel is required Tuesday – Sunday and perhaps this time required is keeping people from stepping into leadership positions. Cost of registration is also a concern, especially with a view to equity.
XIII. **Announcements**

President Watkins made the following announcements:

**A.** George Alexander, *MathAMATYC Educator*, Journal Assistant Editor, received the 2022 Herb Gross Presidential Award.

**B.** Nancy Sattler was awarded the 2022 Mathematics Excellence Award. This award has since been renamed the Mathematics Leadership Excellence Award.

**C.** The members of the 2022 Mathematics Leadership Excellence Award Committee have been selected:

- Chair, Kathryn (Kate) Kozak, Past President
- Anthony Tavares, Northeast
- Keith Nabb, Mid-Atlantic
- Elmira Yakutova-Lorentz, Southeast
- Arthur Schultz, Midwest
- Brandy Englert, Central
- Pat Barrientos, Southwest
- Lori Holdren, Northwest
- Ben Moulton, West

XIV. **Adjournment**

President Watkins recognized and thanked the Local Events Coordinator for the Toronto Conference, Sean Saunders, and his local team for all the work they performed for the Toronto Conference. Turi Suski, Michael Pemberton, and the rest of the conference committee were also thanked for their year-long commitment and great work in bringing this wonderful conference in Toronto and the virtual component to us this year. Conference presenters and attendees were also thanked for a wonderful conference.

AMATYC Delegates were thanked for their participation in the Delegate Assembly.

The meeting adjourned at 3:23 pm (EST).
Attachment A: Minutes Review Committee, 2022 AMATYC Delegate Assembly

The Minutes Review committee, 2022 AMATYC Delegate Assembly, consists of:

- Dale Johanson, Central Vice President, Chair
- Alexander Atwood, State Delegate
- Alberto Isassi, Affiliate Delegate
- Christine Mirbaha, Affiliate President
- Nancy Sattler, AMATYC Past President (Marilyn Mays, alternate)
- Nancy Rivers, 2022 – 2023 AMATYC Board Secretary, will serve in an ex officio capacity.
Duties of AMATYC Delegates

Responsibilities of the Delegate Assembly
1. To vote on all dues changes as submitted by the Executive Board.
2. To vote on constitution changes approved by the Executive Board prior to submission for membership ratification.
3. To present written recommendations to the Executive Board to be considered at the following Executive Board meeting.
4. To approve position statements as presented by the Executive Board. Policy-making procedure has been formalized. Each committee chair submits statements (position statements, etc.) to the AMATYC Editing Director. Following its approval, the statement can be submitted to the Executive Board for its review. An open hearing is then held at an AMATYC conference. The statement is then brought before the Delegate Assembly. If the Delegate Assembly approves, the statement will then become AMATYC policy. The Delegate Assembly has the option of overriding a Board decision if 2/3 of the AMATYC delegates present approve bringing it to the Delegate Assembly for vote. Documents submitted must have the word "draft" written on every page until approval is granted.

Duties of state/province delegates
1. Attend Delegate Assembly (no reimbursement).
2. Appoint campus representatives for the colleges assigned to him/her by the Regional Vice President.
3. Actively solicit membership in AMATYC, especially membership of campus representatives.
4. Assist the Regional Vice President in updating the list of potential AMATYC members from his/her state/province.
5. Assist the Regional Vice President in updating the directory of two-year colleges in his/her state/province.
6. Furnish the Regional Vice President with a calendar of activities and concerns of members from the state/province for possible inclusion in the regional page of the AMATYC News.
7. Encourage articles for the MathAMATYC Educator and other AMATYC publications.

Duties of campus representatives
1. Assist the state/province delegate in promoting the activities of the association at his/her campus.
2. Forward a list of possible candidates for AMATYC membership to the assigned state/province delegate.
3. Assist the assigned state/province delegate and/or the Regional Vice President in updating the directory of two-year colleges in the state/province.
4. Keep the Regional Vice President aware of the changing curriculum patterns at his/her college by sending news related items to the assigned delegate.
5. Furnish the Regional Vice President items of interest from his/her school for the AMATYC News according to schedule.
6. Encourage colleagues to submit articles to the MathAMATYC Educator.
7. Solicit AMATYC institutional membership at home institution.
Rules of Conduct for AMATYC Delegate Assembly

Debate
In the virtual meeting, if a delegate wishes to speak to a motion, they will submit a request through a Google Form. The link to the form will be provided in the meeting chat. A delegate will enter their name, select their delegate type, and whether they wish to speak for a motion (pro), speak against a motion (con), or ask a process question (such as call the question). Process comments will be taken before pro and con comments. Process questions are used to make an original motion, to call for the question, to clarify, or to rise to a point of order. Pro or con comments will alternate until all comments are made. If there are delegates wishing to make comments (either pro or con), and there are no comments on the opposing side, comments will be heard from all delegates wishing to speak until all have been heard or the question has been called. Amendments and motions to table are considered “con.” Each delegate who wishes to speak must be recognized by the President.

Debate begins with the maker of the original motion. Debate alternates between pro and con with the maker of the original motion considered pro. When there are no speakers left, debate ends, and the vote is taken. No speaker may speak to a motion more than two times. Time limits may be imposed on debate either by the President or by a vote of the body. An initial limit of five minutes will be used.

Only members of the Delegate Assembly are permitted to speak.

Other Times (no motion on the floor)
The rules above are in effect any time a motion is on the floor. If no motion is under consideration, delegates may ask to speak by just telling their name and delegate status in the chat.

Open Discussion
Open discussion by delegates at the end of the Delegate Assembly is encouraged. At this time, delegates may present appropriate topics for consideration.

Topics presented must be clearly related to the purposes of AMATYC. The president shall interrupt and rule a speaker out of order if remarks do not lie within these guidelines.

A two-minute limit per delegate is observed. After hearing the topic and rationale, the president may open discussion on the topic, move to the next topic, or assign the topic to an appropriate committee for further discussion.
Delegate Assembly Minutes Approval Procedure

1. At each Delegate Assembly, a Minutes Review Committee of five voting members shall be recommended by the President and approved by motion of the Delegate Assembly. The committee chair shall be a continuing Regional Vice President, or if none, another continuing officer other than the President and the other members shall include a state delegate, an affiliate delegate, and affiliate president and an AMATYC Past-President. The committee will meet briefly at the close of the Delegate Assembly.

2. The AMATYC Secretary shall supply a draft copy of the minutes to the committee within 14 days after the Delegate Assembly. The chair should have an electronic document version for editing.

3. The committee chair shall receive suggestions from the committee, collate and synthesize the suggestions and forward suggestions to the Secretary. The chair should use a review process that ensures that a majority of the committee members are satisfied with the proposed changes.

4. The committee chair will conduct an email ballot to approve the minutes. A majority of the committee must approve the minutes. These approved minutes will be sent to the AMATYC Secretary within 60 days of the Delegate Assembly.

5. A copy of the approved minutes will be included in the delegate packet.

6. At the following Delegate Assembly, the committee chair will report that the minutes were reviewed, corrected, and approved by the Minutes Review Committee.

At each Delegate Assembly, a motion of the Delegate Assembly shall appoint a Minutes Review Committee of five voting members.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Vice President (Chair)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Delegate</td>
<td></td>
<td></td>
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<tr>
<td>Affiliate Delegate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliate President</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMATYC Past President</td>
<td></td>
<td>AMATYC Past President</td>
</tr>
</tbody>
</table>
Delegate Assembly Motion

To: AMATYC Delegate Assembly

Year: 2023

Subject: Delegate Assembly Minutes Approval Committee

Submitted by: Laura Watkins, AMATYC President

Date Submitted: 09/21/23

Motion: That the AMATYC Delegate Assembly
approve the membership of the Minutes Review Committee for the 2023
AMATYC Delegate Assembly as attached.

Rationale:
The Delegates Assembly Minutes Approval Procedure as listed in the
AMATYC Policy and Procedures Manual, section 4.2.3 states: At each
Delegate Assembly a Minutes Review Committee of five voting members shall
be recommended by the President and approved by motion of the Delegate
Assembly. The committee chair shall be a continuing Regional Vice President,
or if none, another continuing officer other than the President, and the other
members shall include a state delegate, an affiliate delegate, an affiliate
president and an AMATYC Past President. This committee will meet briefly at
the close of the Delegate Assembly.

The committee will be formed at the AMATYC Annual Conference and a
membership list attached at that time.

Action taken by the Delegate Assembly on: 11/18/23

Approved  Postponed Until  Withdrawn
Disapproved  Returned for Further Study  Other
### Proposed members of the Minutes Review Committee for the 2023 Delegate Assembly

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Vice President (Chair)</td>
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<tr>
<td>Affiliate Delegate</td>
<td></td>
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<tr>
<td>Affiliate President</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMATYC Past President</td>
<td></td>
<td>AMATYC Past President</td>
</tr>
</tbody>
</table>
President’s Report
2023 AMATYC Delegate Assembly
Laura Watkins

I am pleased to report that AMATYC and its membership are advancing numerous initiatives that help AMATYC achieve its mission. Below are some highlights from 2023.

Omaha Conference: I am very excited for the AMATYC Annual Conference in Omaha. I am hopeful that members will join us there as the city has much to offer. The delegate assembly is considered part of our conference proceedings and is being held virtually on Saturday, November 18th. The conference committee as well as the local events committee has worked hard to produce a wonderful conference opportunity, November 9 – 12th. I want to thank Turi Suski, Michael Pemberton, Julie Gunkelman, Nathalie Vega-Rhodes, Crystal Wiggins, and Todd Stein and all of the members of the local events committee for all their efforts in creating a wonderful conference experience.

Fiscal Issues: The organization continues to recover from the impact of the COVID pandemic. The cancelation of the 2020 conference in Spokane along with lower attendance in Phoenix and Toronto has caused AMATYC to dip into its reserves. These reserved funds were saved by previous Boards and has allowed AMATYC to weather the challenges of navigating through a global pandemic. AMATYC has had to use its reserve funds to cover operating expenses. In 2023, $140,000 of AMATYC’s reserve funds were used to cover these expenses. More funds may need to be transferred for expenses through the end of the year. Typically, the Strategic Planning and Orientation (SPO) meeting is held in person with ANet chairs being invited to join the Board. Looking forward to SPO for the 2024-2025 Executive Board, this meeting will be held virtually creating substantial savings for the organization.

Monthly Meetings: The Executive Board has continued to pilot having two-hour monthly meetings in months where SPO, SBM, or FBM are not scheduled, we also do not meet in December. These meetings have been successful and provided the board with the opportunity to be more responsive to the needs of AMATYC.

Grants: AMATYC continues to support the research efforts of its members. So far this year, AMATYC has provided Level 1 and Level 2 support to grants submitted to the National Science Foundation. In an effort to help AMATYC be more fiscally sound, Megan Breit-Goodwin, April Ström, Anne Dudley and the Office prepared a proposal submitted to the National Science Foundation to increase our indirect cost rate and this proposal has been approved. The indirect costs rate has been raised from a de minimis rate of 10% to a rate of 33.91%. This increase will direct additional funds to the organization for projects where AMATYC is the fiscally responsible entity (Level 2 support) as compensation for managing the project.
AMATYC currently has two Level 2 NSF-funded projects. The Teaching for PROWESS (TfP) project is a five-year NSF grant of $1.8 million focusing on improving student success through active learning and on making systemic changes in mathematics education in the community college following the guidelines of the IMPACT document and is in its fourth year. AMATYC members are encouraged to consider hosting a summer workshop offered by this project.

Additionally, AMATYC along with the Two-Year College Chemistry Consortium (2YC3) and American Association of Physics Teachers (AAPT) received a grant titled Facilitating Accessibility in STEM at Two-Year Colleges Conference to host a workshop in June focused on creating a community of practice where STEM faculty can share knowledge and techniques that make their classes more accessible for all students.

**Collaborations:** AMATYC continues to enjoy numerous partnerships with other national organizations and entities. AMATYC funds presidential exchanges with the MAA, NCTM, NCSM, AMTE, NOSS, and TODOS. AMATYC partners with the ASA and JCW on joint committees and with the ASA and the MAA on joint webinars. AMATYC continues to participate as one of 19 member-organizations on the Conference Board of the Mathematical Sciences (CBMS). Participation in CBMS has created closer relationships with other mathematics-focused organizations such that we are able to explore new opportunities for collaboration.

**Thank you:** I want to thank Anne Dudley, Executive Director, the AMATYC Office, the 2022-2023 AMATYC Executive Board, and Turi Suski, Conference Coordinator, for all their work this year. You made my job much easier.
**AMATYC**  
**Balance Sheet**  
**December 31, 2022**

**ASSETS**

### Current Assets
- AMATYC Checking: 200,454.06
- Accounts Receivable: 140,166.96
- Merrill Lynch: 1,498,422.66
- AMATYC Foundation Investments: 502,328.95

Total Current Assets: **2,341,372.63**

### Other Assets
- Prepaid Expense: 43,711.25
- Prepaid Insurance: 7,088.65
- Computer Equipment: 16,102.67
- Office Furniture: 899.98
- Accumulated Depreciation: **(13,531.94)**

Total Other Assets: **54,270.61**

Total Assets: **2,395,643.24**

**LIABILITIES AND NET ASSETS**

### Liabilities
- Prepaid Income: 24,097.50
- Accounts Payable: 303,807.97

Total Liabilities: **327,905.47**

### Net Assets
- Net Assets: 2,040,214.04

Net Assets: With Donor Restriction
- Other Foundation: 264,010.11
- Endowments: 289,801.82
- Change In Net Assets: **(526,288.20)**

Total Net Assets: **2,067,737.77**

Total Liabilities & Net Assets: **2,395,643.24**

For Management Purposes Only
## INCOME

### DUES

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<thead>
<tr>
<th>Membership Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Membership</td>
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<tr>
<td>Adjunct Membership</td>
<td>2,629.00</td>
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<tr>
<td>Retired Membership</td>
<td>2,475.00</td>
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<tr>
<td>Institutional Membership</td>
<td>59,694.00</td>
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<tr>
<td>Associate Membership</td>
<td>340.00</td>
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<tr>
<td>Library</td>
<td>1,716.00</td>
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<td>Life Membership</td>
<td>9,620.00</td>
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<td>WebScription</td>
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<tr>
<td>Discount Membership</td>
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<td><strong>Total Dues</strong></td>
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### INTEREST

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<td>Investment Income</td>
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<td><strong>Total Interest Income</strong></td>
<td><strong>$ 192,037.73</strong></td>
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### OTHER INCOME

<table>
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<tr>
<th>Other Income Type</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Educator Advertising</td>
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</tr>
<tr>
<td>Other Advertising Income</td>
<td>8,512.00</td>
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<tr>
<td>Student Math League</td>
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<tr>
<td>Student Research League</td>
<td>270.00</td>
</tr>
<tr>
<td>Donations/Contributions</td>
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<tr>
<td>Merchandise &amp; Miscellaneous Income</td>
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<tr>
<td>Grants</td>
<td>258,959.57</td>
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<td>NSF Indirect Recovery</td>
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<td><strong>Total Other Income</strong></td>
<td><strong>$ 294,032.49</strong></td>
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### CONFERENCE INCOME

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<th>Conference Income Type</th>
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<tr>
<td>Registration</td>
<td>205,309.00</td>
</tr>
<tr>
<td>Virtual Conference Registration</td>
<td>3,700.00</td>
</tr>
<tr>
<td>Exhibitors</td>
<td>30,290.00</td>
</tr>
<tr>
<td>Exhibitor Product Presentation / Focus Groups</td>
<td>0.00</td>
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<tr>
<td>Commercial Presentations</td>
<td>4,500.00</td>
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<tr>
<td>Hospitality Donations</td>
<td>2,699.07</td>
</tr>
<tr>
<td>Symposia/Workshop</td>
<td>0.00</td>
</tr>
<tr>
<td>Conference Program Advertising</td>
<td>0.00</td>
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<tr>
<td>In-The-Bag Advertising</td>
<td>1,350.00</td>
</tr>
<tr>
<td>Conference Advertising Opportunities</td>
<td>2,000.00</td>
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<tr>
<td>Corporate Partnership</td>
<td>25,600.00</td>
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<td>Other Conference Income</td>
<td>32,702.84</td>
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<tr>
<td>Conference Donations</td>
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<tr>
<td><strong>Total Conference Income</strong></td>
<td><strong>$ 308,150.91</strong></td>
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</tbody>
</table>
FOUNDATION INCOME

General Development $14,289.25
Foundation Investment Income $44,534.52
Marketing Promotions -
Beyond Crossroads -
Student Math League $262.00
Student Research League $2,985.00
AMATYC Project ACCCESS $4,053.00
Developmental Mathematics $32.00
Grants $3.00
Standards $245.04
Presidential Student Scholar -
Regional Scholarship $968.00
Adjunct Conference Grant $50.00
Research in Mathematics $123.71
Leila & Simon Peskoff Award $2,002.50
Margie Hobbs Award $1,000.00
Endowments $9,628.28

Total Foundation Income $80,176.30

TOTAL INCOME $1,036,934.43

COSTS AND EXPENSES

GENERAL OFFICE EXPENSES

Clerical & Casual Labor 18,720.00
Contract Labor 82,656.90
Executive Director Salary 29,065.56
Executive Director Travel 3,030.81
Staff Development 49.00
Reassigned Time 10,000.00
Legal Expenses 0.00
Accounting Expenses 8,175.00
Servicemark Fee 0.00
Consulting Fees 0.00
Postage & Delivery 778.14
Telephone 0.00
Transportation 0.00
Office Supplies 2,022.21
Duplication Expense 0.00
Membership Services 468.85
Payroll Preparation Charges 1,725.25
Bank Service Charges 113.25
Credit Card Services 5,547.23
Miscellaneous Service Charges 80.02
Computer Hardware & Supplies 3,524.50
Bad Debt 1,500.00
Depreciation Expense 1,652.60
Licensing Fees 280.00
### Other General Office Expense
- OnLine Database: $12,325.97
- Software Annual Fees: $4,782.36
- Insurance: $12,038.78
- Southwest Tennessee CC Expenses: $10,000.00

**Total General Office Expense**: $209,310.33

### SPRING OFFICERS’ MEETING
- Transportation: $6,971.49
- Lodging: $5,226.40
- Food: $1,703.95
- Other SOM: 0.00

**Total Spring Officers Mtg**: $13,901.84

### STRATEGIC PLANNING/ORIENTATION
- Transportation: $712.00
- Lodging: 0.00
- Food: 0.00
- Other SPOM: 0.00

**Total Strategic Planning/Orientation**: $712.00

### ANNUAL CONFERENCE
#### CONFERENCE PLANNING
- Advance Planning Visit: $1,779.41
- Site Selection Visits: $831.52
- Telephone: 0.00
- Program Preparation Expense: $2,524.93
- Spring Officer Meeting: 0.00
- Supplies: 0.00
- Conference Marketing: $582.00
- Conference Logo Design: $350.00
- Exhibit Marketing: $1,107.08
- Conference Enhancements: 0.00
- Conference Coordinator: $1,582.23

**Total General & Future Conf. Planning**: $8,757.17

#### CONFERENCE EXPENSES
- Speaker Fees/Expense: $4,859.74
- Conference Space Rental: 0.00
- Exhibit Space Carpet & Drayage: $9,032.00
- Shuttle Bus & Workshop/Mini Transportation: 0.00
- Audio Visual/Computer Rental: $65,663.24
- Other Rentals: 0.00
- Computer/Email Access: 0.00
- Internet - Registration: 0.00
- Symposia/Workshops: 0.00
- Conference Insurance: $2,866.02
- Registration Equipment & Materials: $9,285.78
- Stationery, Supplies, Duplication: $394.09
<table>
<thead>
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<th>Category</th>
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</thead>
<tbody>
<tr>
<td>Postage, Delivery &amp; Shipping</td>
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<td>Credit Card Services</td>
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<td>Photography</td>
<td>970.41</td>
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<tr>
<td>Conference Release Time</td>
<td>12,000.00</td>
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<tr>
<td>Staff Salaries</td>
<td>153,505.69</td>
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<td>Clerical and Casual Labor</td>
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<tr>
<td>Registration Workers</td>
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<tr>
<td>Security Guards</td>
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<tr>
<td>Prof. Conf. Planning Organization</td>
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<td>Anets</td>
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<tr>
<td>Transportation</td>
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<tr>
<td>Lodging</td>
<td>29,222.49</td>
</tr>
<tr>
<td>Food</td>
<td>1,452.00</td>
</tr>
<tr>
<td>Telephone</td>
<td>0.00</td>
</tr>
<tr>
<td>Friday Event</td>
<td>26,969.34</td>
</tr>
<tr>
<td>Saturday Breakfast</td>
<td>22,132.30</td>
</tr>
<tr>
<td>Local Emphasis</td>
<td>1,982.84</td>
</tr>
<tr>
<td>Affiliate Presidents Luncheon</td>
<td>2,435.67</td>
</tr>
<tr>
<td>Leadership Dinner</td>
<td>2,577.44</td>
</tr>
<tr>
<td>ACCCESS Food</td>
<td>0.00</td>
</tr>
<tr>
<td>Appreciation Reception</td>
<td>742.22</td>
</tr>
<tr>
<td>Hospitality</td>
<td>3,246.05</td>
</tr>
<tr>
<td>Awards</td>
<td>65.00</td>
</tr>
<tr>
<td>Other Annual Conference</td>
<td>9,098.16</td>
</tr>
<tr>
<td><strong>Total Conference Event Expenses</strong></td>
<td>$ 413,730.12</td>
</tr>
</tbody>
</table>

**CONFERENCE PUBLICATIONS**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising/Exhibitor Folder</td>
<td>0.00</td>
</tr>
<tr>
<td>Call for Papers &amp; December Flyer</td>
<td>675.00</td>
</tr>
<tr>
<td>Miniprograms</td>
<td>7,630.56</td>
</tr>
<tr>
<td>Conference Grid</td>
<td>1,150.00</td>
</tr>
<tr>
<td>April Flyer</td>
<td>1,920.07</td>
</tr>
<tr>
<td><strong>Conference Publications Expense</strong></td>
<td>$ 11,375.63</td>
</tr>
</tbody>
</table>

**TTL Annual Conf Event**

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 433,862.92</td>
</tr>
</tbody>
</table>

**PUBLICATIONS**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>The MathAMATYC Educator</td>
<td>31,403.89</td>
</tr>
<tr>
<td>The Newsletter</td>
<td>12,153.98</td>
</tr>
<tr>
<td><strong>Other Publications</strong></td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total Publications</strong></td>
<td>$ 43,557.87</td>
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</table>

**COMMITTEES & INSTITUTES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division/Department Issues</td>
<td>0.00</td>
</tr>
<tr>
<td>Developmental Mathematics</td>
<td>0.00</td>
</tr>
<tr>
<td>Teacher Preparations</td>
<td>0.00</td>
</tr>
<tr>
<td>Mathematics Intensive/College Mathematics</td>
<td>0.00</td>
</tr>
<tr>
<td>Committee/Program</td>
<td>Amount</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Math and Its Applic for Career</td>
<td>0.00</td>
</tr>
<tr>
<td>Innovative Pedagogy Strategies</td>
<td>0.00</td>
</tr>
<tr>
<td>Emerging Issues</td>
<td>0.00</td>
</tr>
<tr>
<td>RMETYC Committee</td>
<td>0.00</td>
</tr>
<tr>
<td>Placement/Assessment</td>
<td>0.00</td>
</tr>
<tr>
<td>Web Site Coordinator</td>
<td>0.00</td>
</tr>
<tr>
<td>Webinars</td>
<td>200.00</td>
</tr>
<tr>
<td>Membership Committee</td>
<td>0.00</td>
</tr>
<tr>
<td>Grants Committee</td>
<td>0.00</td>
</tr>
<tr>
<td>Crossroads Coordinators</td>
<td>0.00</td>
</tr>
<tr>
<td>Beyond Crossroads</td>
<td>0.00</td>
</tr>
<tr>
<td>Student Math League</td>
<td>850.00</td>
</tr>
<tr>
<td>Student Research League</td>
<td>3,166.96</td>
</tr>
<tr>
<td>Summer Institutes &amp; Workshops</td>
<td>0.00</td>
</tr>
<tr>
<td>Traveling Workshops</td>
<td>(418.80)</td>
</tr>
<tr>
<td>Nominating Workshops</td>
<td>0.00</td>
</tr>
<tr>
<td>ME &amp; TE Awards</td>
<td>0.00</td>
</tr>
<tr>
<td>Regional Meetings</td>
<td>0.00</td>
</tr>
<tr>
<td>Grant Seed Fund</td>
<td>0.00</td>
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</table>

Total Committee & Institutes $3,798.16

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>CBMS</td>
<td>3,500.30</td>
</tr>
<tr>
<td>CSSP</td>
<td>0.00</td>
</tr>
<tr>
<td>Triangle Coalition</td>
<td>0.00</td>
</tr>
<tr>
<td>MAA</td>
<td>1,522.91</td>
</tr>
<tr>
<td>NOSS</td>
<td>373.20</td>
</tr>
<tr>
<td>TODOS</td>
<td>0.00</td>
</tr>
<tr>
<td>NCTM</td>
<td>1,811.64</td>
</tr>
<tr>
<td>Mu Alpha Theta</td>
<td>0.00</td>
</tr>
<tr>
<td>Affiliate Give-aways</td>
<td>2,087.72</td>
</tr>
<tr>
<td>Affiliate Services</td>
<td>316.81</td>
</tr>
<tr>
<td>Affiliate Liaison</td>
<td>3,916.30</td>
</tr>
<tr>
<td>National &amp; Community Relations</td>
<td>1,791.79</td>
</tr>
<tr>
<td>Other Liaison</td>
<td>1,714.26</td>
</tr>
</tbody>
</table>

Total Liaison Expense $17,034.93

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Cost</td>
<td>$ (13,615.92)</td>
</tr>
</tbody>
</table>

Total Indirect cost (13,615.92)

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project GAINS</td>
<td>0.00</td>
</tr>
<tr>
<td>Project ACCCESS</td>
<td>7,078.00</td>
</tr>
<tr>
<td>NSF Project Slope</td>
<td>(405.00)</td>
</tr>
<tr>
<td>NSF ACCCESS Research</td>
<td>27,115.51</td>
</tr>
<tr>
<td>NSF TIP Grant</td>
<td>235,459.98</td>
</tr>
</tbody>
</table>

Total Special Projects Expenses $269,248.49
### AMATYC FOUNDATION

<table>
<thead>
<tr>
<th>Fund</th>
<th>Amount (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Foundation</td>
<td>3,641.39</td>
</tr>
<tr>
<td>Beyond Crossroads</td>
<td>-</td>
</tr>
<tr>
<td>Project ACCCESS</td>
<td>-</td>
</tr>
<tr>
<td>Student Math League</td>
<td>970.00</td>
</tr>
<tr>
<td>Student Research League</td>
<td>2,683.00</td>
</tr>
<tr>
<td>Developmental Mathematics</td>
<td>1,999.18</td>
</tr>
<tr>
<td>Grants</td>
<td>-</td>
</tr>
<tr>
<td>Presidential Student Scholar</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Leila &amp; Simmon Peskoff Award</td>
<td>1,960.00</td>
</tr>
<tr>
<td>Margie Hobbs Award</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Foundation Expenses</strong></td>
<td><strong>13,253.57</strong></td>
</tr>
</tbody>
</table>

**Grand Total Expenses**

$991,064.19

**Change in Net Assets (before investments)**

$45,870.24

---

### Investment Income

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMATYC Investment Unrealized Gain/Loss</td>
<td>(453,428.20)</td>
</tr>
<tr>
<td>Foundation Investment Unrealized Gain/Loss</td>
<td>(118,730.24)</td>
</tr>
<tr>
<td><strong>Total Income less Expenses on Investments</strong></td>
<td><strong>(572,158.44)</strong></td>
</tr>
</tbody>
</table>

**Total Income with Investments**

$464,775.99

**Total Expenses with Investments**

$991,064.19

**Total Change in Net Assets**

$(526,288.20)
The Foundation Board meets monthly via ZOOM. Here are some actions we have taken or items we have been working on in 2022:

- **Wanda Garner Presidential Student Scholarship (WGPSS):** The Foundation decided to award two $1000 scholarships this year. Nominations are due on October 15. The awardees will be randomly chosen at the October Foundation meeting. The awardees will be announced after that date.

- **Leila & Simon Peskoff Award:** The Leila and Simon Peskoff award was awarded to Marty Kellum.

- **Hobbs Award:** Margie Hobbs award was awarded to Ajai Simmons.

- **Regional Scholarships:** The Foundation agreed to fund an additional 8 Regional Scholarships for Toronto above the 8 supported by the Executive Board.

- **AMATYC Project ACCCESS:** The Foundation continues to budget annual financial support (about $14,000) to AMATYC Project ACCCESS fellows for conference housing and food.

- **Donations to the Foundation:** The 2022 fundraising drive raised $35,099.23.

### History of Donations

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>#</td>
<td>$</td>
<td>#</td>
<td>$</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>Total</td>
<td>$33,375</td>
<td>537</td>
<td>$30,549</td>
<td>630</td>
<td>$28,475</td>
<td>314</td>
</tr>
<tr>
<td>$40,536</td>
<td>148</td>
<td>$23,145</td>
<td>114</td>
<td>$40,536</td>
<td>217</td>
<td>$28,145</td>
</tr>
<tr>
<td>$35,562.98</td>
<td>311</td>
<td>$40,536</td>
<td>148</td>
<td>$40,536</td>
<td>217</td>
<td>$35,562.98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>#</td>
<td>$</td>
<td>#</td>
</tr>
<tr>
<td>$34,966</td>
<td>519</td>
<td>$28,843</td>
<td>575</td>
</tr>
</tbody>
</table>

- **2023 Fundraising Campaign:** The Foundation has set the fundraising goal for this year to be $35,000 and has been a yearlong fund-raising campaign in 2023. The fundraising started with “Show your Love Campaign” in March. The “Show your Love Campaign” raised $1335.00 from 6 donors. This campaign will not be repeated. The “dot campaign” will return to the conference, which starts with an email fundraising campaign in October and ends on the Friday of the conference. There is also a campaign of $50 for the 50th, where anyone who gave $50 or more to AMATYC will be in a drawing for 1 of 10 50th anniversary swag packages. Every dollar makes a difference!

- **Newsletter Articles:** The Foundation submits one article for inclusion in each issue of the *AMATYC News*. The articles describe the work of the Foundation, highlighted the programs and
awards funded by the Foundation, encouraged monthly donations, and described the travel awards given in 2023 for professional development. Donors from the previous year are listed annually in the Fall issue.

- **Transfer of funds among the investment accounts.** Donations that will not be needed within 3 years are transferred to AMATYC’s investment accounts. At the end of 2022, over $21,384.37 was transferred into the Foundation investment fund.

- **Member support.** The Foundation gave 12 $400 travel grants to AMATYC members that they could use to attend a professional development activity that they were interested in. This was a popular activity of the Foundation and supported the goals of the Foundation’s strategic plan. Overall, around 76 members applied for the grants.

  Thanks to all donors for supporting members and the mission of AMATYC by contributing to the AMATYC Foundation!
## 2018 - 2023 AMATYC Strategic Plan Strategies

**Priority I: Advocate for mathematics educators and mathematics students.**

A. Expand the visibility of AMATYC.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a plan for and increase presence of AMATYC on social media</td>
<td>Ongoing</td>
<td>Social media Committee</td>
</tr>
<tr>
<td>Promote AMATYC webinars</td>
<td>Ongoing</td>
<td>Professional Development coordinator, webinar coordinator</td>
</tr>
<tr>
<td>Reach out to local four-year institutions and universities near the location of the Annual Conference, including graduate schools</td>
<td>Ongoing</td>
<td>VP whose region the conference is in</td>
</tr>
<tr>
<td>Make swag available at conferences of partner organizations</td>
<td>Ongoing</td>
<td>ED, membership committee</td>
</tr>
<tr>
<td>Promote our position statements by making them more visible and available to all stakeholders</td>
<td>Medium</td>
<td>Board</td>
</tr>
<tr>
<td>Create a clearing house of all position statements of sister organizations and AMATYC</td>
<td>Medium</td>
<td>ED, President</td>
</tr>
<tr>
<td>budget $3,000 to contract with <a href="https://YourMembership.com">YourMembership.com</a> to redesign the AMATYC website, making it mobile-friendly</td>
<td>Completed</td>
<td>Board, Webmaster</td>
</tr>
<tr>
<td>Expand presence in graduate programs in Mathematics.(CIRTL) and mathematics education and encourage participation in local affiliate meetings</td>
<td>Medium</td>
<td>VP</td>
</tr>
<tr>
<td>Support more grants</td>
<td>Ongoing</td>
<td>Board, grant coordinator</td>
</tr>
<tr>
<td>Recruit more four-year college instructors into AMATYC</td>
<td>Medium</td>
<td>(Membership Committee)</td>
</tr>
<tr>
<td>Develop a press release package about AMATYC to send out to community colleges. (“What does AMATYC mean to me”, position statements information, website, membership types, etc)</td>
<td>Short</td>
<td>Membership Committee</td>
</tr>
</tbody>
</table>
B. Further a common vision by strengthening collaborations with other organizations.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue the work with TPSE Math</td>
<td>Ongoing</td>
<td>President</td>
</tr>
<tr>
<td>Continue our involvement with CBMS, MAA, AMS, NCTM, NOSS, AMTE, NCSM, JMM, ASA, TODOS, etc.</td>
<td>Ongoing</td>
<td>President and ED</td>
</tr>
<tr>
<td>Encourage AMATYC members to participate in other organization’s conferences and invite their members to our conference</td>
<td>Ongoing</td>
<td>ED</td>
</tr>
<tr>
<td>Publicize the connects with other organizations through the Collaboration Corner in <em>AMATYC News</em></td>
<td>Ongoing</td>
<td>Board</td>
</tr>
</tbody>
</table>

C. Recruit and retain individuals from under-represented groups into AMATYC membership and leadership.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue our partnership with TODOS</td>
<td>Ongoing</td>
<td>President and ED</td>
</tr>
<tr>
<td>Approve our position statement on Equity</td>
<td>Medium</td>
<td>Equity Committee</td>
</tr>
<tr>
<td>Continue the AMATYC Project ACCCESS Program</td>
<td>Ongoing</td>
<td>board</td>
</tr>
<tr>
<td>Create an Equity Committee</td>
<td>Complete</td>
<td>Board</td>
</tr>
<tr>
<td>Have a separate program key for equity</td>
<td>Short</td>
<td>Conference Committee and board</td>
</tr>
<tr>
<td>Invite a national speaker on equity to give a non-reviewed presentation at an AMATYC Annual Conference</td>
<td>Ongoing</td>
<td>President</td>
</tr>
</tbody>
</table>

D. Attract and retain students into mathematics intensive fields, particularly students from under-represented groups.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage students involved in SML and SRL to become members of AMATYC</td>
<td>Short</td>
<td>Student Leagues Leaders</td>
</tr>
<tr>
<td>Continue door prize donation to Mu Alpha Theta</td>
<td>Ongoing</td>
<td>Liaison to Mu Alpha Theta</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Continue work with JCW</td>
<td>Ongoing</td>
<td>Liaison to JCW</td>
</tr>
<tr>
<td>Collaborate with National Hispanic Caucus</td>
<td>Medium</td>
<td>Equity Committee</td>
</tr>
<tr>
<td>Explore grants to promote mathematics majors to elementary and middle school students</td>
<td>Long</td>
<td>Board and grant coordinator</td>
</tr>
<tr>
<td>Establish a relationship with Math Counts (middle school national mathematics competition), <a href="https://www.mathcounts.org/">https://www.mathcounts.org/</a></td>
<td>Long</td>
<td>ED</td>
</tr>
<tr>
<td>Use IMPACT Live as a repository of ideas of how you encourage underrepresented minorities into mathematics</td>
<td>Short</td>
<td>IMPACT group</td>
</tr>
<tr>
<td>Promote equity issues through presentations, webinars, and articles</td>
<td>Ongoing</td>
<td>Equity Committee</td>
</tr>
<tr>
<td>Provide special equity training for AMATYC board (This is also on V initiative C.)</td>
<td>Short</td>
<td>Board</td>
</tr>
<tr>
<td>Provide Professional Development that focuses on inclusive teaching and applications of mathematics of interest to under-represented groups.</td>
<td>Long</td>
<td>PD Coordinator, Travelling Workshop Coordinator, Program Committee</td>
</tr>
<tr>
<td>Expand involvement in NCTM, including information sharing on college expectations/preparations of students</td>
<td>Long</td>
<td>ED, President</td>
</tr>
</tbody>
</table>

### E. Advance seamless course and program articulation.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitate conversations between two-year and four-year (and universities) institutions, focusing on articulation</td>
<td>Long</td>
<td>President, VP, ED</td>
</tr>
<tr>
<td>Support Pathways work</td>
<td>Ongoing</td>
<td>Pathways Joint Committee</td>
</tr>
<tr>
<td>Encourage community colleges and universities to facilitate reverse transfer</td>
<td>Long</td>
<td>President, VP, ED</td>
</tr>
<tr>
<td>Encourage block transferring of lower division common courses</td>
<td>Long</td>
<td>President, VP, ED</td>
</tr>
</tbody>
</table>
F. Develop and maintain standards for mathematics education in the first two years of college.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disseminate and Promote Crossroads, Beyond Crossroads, IMPACT</td>
<td>Ongoing</td>
<td>Board</td>
</tr>
<tr>
<td>Position statements reviewed, updated and new ones written</td>
<td>Ongoing</td>
<td>Board</td>
</tr>
<tr>
<td>Promote current position statements.</td>
<td>Ongoing</td>
<td>Board</td>
</tr>
<tr>
<td>Create a new way to hold position statement forums; electronic review and input, perhaps</td>
<td>Short</td>
<td>Board and Conference Committee</td>
</tr>
<tr>
<td>Investigate developing a position statement on multiple measures of success/completion</td>
<td>Short</td>
<td>Board</td>
</tr>
<tr>
<td>Promote IMPACT and IMPACT Live!</td>
<td>Ongoing</td>
<td>Board</td>
</tr>
<tr>
<td>Review the standards of <em>Crossroads</em> and <em>Beyond Crossroads</em> to see if they are still applicable</td>
<td>Ongoing</td>
<td>Standards Committee</td>
</tr>
</tbody>
</table>

G. Educate the public on the AMATYC IMPACT standards and other AMATYC or national initiatives.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote AMATYC IMPACT and other standards documents to other organizations and colleges- NCTM, MAA, ASA, TODOS, National Hispanic Caucus, JCW, etc.</td>
<td>Ongoing</td>
<td>President, ED</td>
</tr>
<tr>
<td>Promote AMATYC on social media platforms, such as Facebook, Instagram, and Twitter</td>
<td>Ongoing</td>
<td>Social Media Committee</td>
</tr>
<tr>
<td>Write press releases and post them on social media</td>
<td>Ongoing</td>
<td>Social Media Committee</td>
</tr>
<tr>
<td>Invite media to AMATYC conferences</td>
<td>Short</td>
<td>Conference committee and Board</td>
</tr>
</tbody>
</table>

Priority II: Provide and promote professional development opportunities to faculty whose primary focus is mathematics in the first two years of college.
A. Create year-round AMATYC opportunities for professional development utilizing various modalities.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue Project ACCCESS</td>
<td>Ongoing</td>
<td>AMATYC Board, AMATYC Foundation</td>
</tr>
<tr>
<td>Encourage committees/ANets to present co-sponsored webinars</td>
<td>Ongoing</td>
<td>Committee/ANet Chairs, Professional Development Committee</td>
</tr>
<tr>
<td>Promote affiliate conferences, webinars, and traveling workshops as additional forms of professional development</td>
<td>Ongoing</td>
<td>VPs, President-Elect, Affiliate Presidents</td>
</tr>
<tr>
<td>Encourage and develop grant opportunities that provide professional development</td>
<td>Long</td>
<td>Grants Coordinator, AMATYC Executive Board, Committee Chairs</td>
</tr>
<tr>
<td>Develop, offer, and promote traveling workshops</td>
<td>Ongoing</td>
<td>Traveling Workshop Coordinator, Professional Development Committee, Committee Chairs</td>
</tr>
<tr>
<td>Provide professional development on contemporary issues in mathematics education</td>
<td>Ongoing</td>
<td>IMPACT Live!</td>
</tr>
</tbody>
</table>

B. Offer professional development focused on mentoring new faculty teaching mathematics in the first two years of college.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to support Project ACCCESS</td>
<td>Ongoing</td>
<td>AMATYC Executive Board, AMATYC Foundation</td>
</tr>
<tr>
<td>Support the “Mobile NExT” grant</td>
<td>S (Ongoing if get grant)</td>
<td>AMATYC Executive Board</td>
</tr>
<tr>
<td>Encourage affiliates to create and promotion mentoring projects similar to ACCCESS for</td>
<td>Long</td>
<td>Regional VPs, Project ACCCESS Coordinator</td>
</tr>
<tr>
<td>Strategies</td>
<td>Timeline</td>
<td>Responsible Party</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td><strong>C. Enhance access to high quality professional development for all mathematics faculty.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey AMATYC members to get feedback on what they would like to see for professional development opportunities</td>
<td>Short and long</td>
<td>Professional Development Committee</td>
</tr>
<tr>
<td>Reach out and leverage groups who can host pre-conference workshops– through grant money, etc. – similar to what dev math and stats have done in the past.</td>
<td>Ongoing</td>
<td>Committee Chairs, Grants Coordinator</td>
</tr>
<tr>
<td>Disseminate PD position statements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage Affiliates and Institutional Members to use AMATYC’s YouTube Channel as a form of professional development</td>
<td>Medium</td>
<td>Conference Committee, Affiliate Presidents, Social Media Committee</td>
</tr>
<tr>
<td>Develop new initiatives to increase awareness of existing PD opportunities for adjuncts</td>
<td>Long</td>
<td>Adjunct Faculty Issues ANet</td>
</tr>
<tr>
<td>Increase our capacity to offer more webinars by training more hosts.</td>
<td>Long</td>
<td>Webinar Coordinator</td>
</tr>
<tr>
<td>Curate a professional development library</td>
<td>Long</td>
<td>IMPACT Live!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D. Collaborate with other organizations to provide professional development opportunities.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Timeline</td>
<td>Responsible Party</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Collaborate with other organizations on designing professional development (MAA - Project NExT)</td>
<td>Ongoing – if get grant</td>
<td>Executive Director, President, Grants Coordinator</td>
</tr>
<tr>
<td>Encourage other organizations to jointly sponsor sessions/webinars together</td>
<td>Ongoing</td>
<td>Executive Director, President</td>
</tr>
<tr>
<td>Training IMPACT Ambassadors to be involved with other national organizations on sharing resources, research, and networks</td>
<td>long</td>
<td>IMPACT Live!</td>
</tr>
<tr>
<td>Cooperate with CBMS (17 organizations) to see if we can come up with joint initiatives</td>
<td></td>
<td>Executive Director, President</td>
</tr>
<tr>
<td>Investigate what other organizations are doing with respect to professional development</td>
<td>short</td>
<td>Executive Director, President</td>
</tr>
<tr>
<td>Research funding opportunities to expand programs and offerings</td>
<td>long</td>
<td>Executive Director, President, Grants Coordinator</td>
</tr>
<tr>
<td>Continue support of existing partnerships</td>
<td>Ongoing</td>
<td>Executive Director, President</td>
</tr>
</tbody>
</table>

**Priority III: Promote research on the teaching and learning of mathematics and statistics in the first two years of college.**

A. Encourage qualitative and quantitative research focused on student learning for a diverse range of learners.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold a research pre-session on Wed ahead of conferences (currently RMETYC supports this on Thurs nights - Symposium format).</td>
<td>Ongoing</td>
<td>RMETYC</td>
</tr>
<tr>
<td>Continue encouraging research-based talks during conference</td>
<td>Ongoing</td>
<td>RMETYC, AMATYC News, email blasts</td>
</tr>
</tbody>
</table>
Investigate different possibilities of using the *MathAMATYC Educator* to promote research in mathematics education, such as a special issue, problem section that is focused on a research problem, and inclusion of student research.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold targeted webinars on research methods in mathematics education research.</td>
<td>Ongoing</td>
<td>RMETYC, Webinar Coordinator, Statistics Committee, PD Coordinator</td>
</tr>
<tr>
<td>Hold periodic virtual meetings for dissemination of research practices and findings, as well as mentoring early researchers.</td>
<td>Ongoing</td>
<td>RMETYC</td>
</tr>
<tr>
<td>Develop research associates (as described in the PPM) through projects such as Project SLOPE.</td>
<td>Long</td>
<td>Project Director (if available), Project ACCCESS Coordinator, AMATYC Executive Director</td>
</tr>
</tbody>
</table>

B. Train and support faculty who are interested in conducting research and classroom research.

Investigate the possibility of an AMATYC research “center” or “arm” that produces research for community colleges (e.g., Center for Research of AMATYC = CRAMATYC).

Ongoing | Editorial board, RMETYC, Student Research League

<table>
<thead>
<tr>
<th>Strategies</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Investigate different possibilities of using the <em>MathAMATYC Educator</em> to promote research in mathematics education, such as a special issue, problem section that is focused on a research problem, and inclusion of student research.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investigate the possibility of an AMATYC research “center” or “arm” that produces research for community colleges (e.g., Center for Research of AMATYC = CRAMATYC)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Develop a position statement to support research in mathematics education in two-year colleges and by two-year college faculty. This position statement could be used as a tool to gain support from college administration for faculty engagement in research.  

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seek out and encourage potential grant projects that promote research in mathematics education (e.g., Project SLOPE, AI@CC, Project ACCCESS).</td>
<td>Ongoing</td>
<td>AMATYC Grants Coordinator, RMETYC, AMATYC Executive Director, AMATYC Foundation Board</td>
</tr>
<tr>
<td>Disseminates grant opportunities, funded grant projects, and research references for faculty via IMPACT Live!</td>
<td>Ongoing</td>
<td>Grants Coordinator</td>
</tr>
</tbody>
</table>
Collaborate with other organizations to partner on grant project. | Ongoing | AMATYC President, Past-president, Executive Director, Grants Coordinator
---|---|---
Leverage research associates from Project SLOPE to help bring in researchers and disseminate research results. | Ongoing | Lead of Project SLOPE, RMETYC Chair

D. Continue to improve instructional resources based on classroom research.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage Project ACCCESS fellows for disseminating project outcomes.</td>
<td>Ongoing</td>
<td>Project ACCCESS Coordinator</td>
</tr>
<tr>
<td>Promote and encourage implementation of IMPACT/IMPACT Live.</td>
<td>Ongoing</td>
<td>Standards Committee, AMATYC Board</td>
</tr>
<tr>
<td>Investigate future special issues for the MathAMATYC Educator that connect to current trends.</td>
<td>Long</td>
<td>Editorial board</td>
</tr>
<tr>
<td>Consider a position statement addressing research-based instructional resources.</td>
<td>Medium</td>
<td>RMETYC Chair, Committees and ANets</td>
</tr>
</tbody>
</table>

E. Advocate for the continued improvement of placement processes based on program assessment.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold webinars on placement processes and program assessment</td>
<td>Ongoing</td>
<td>Placement and Assessment Committee</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>---------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Provide Placement and Assessment Themed Session at annual conference.</td>
<td>Ongoing</td>
<td>Placement and Assessment Committee</td>
</tr>
<tr>
<td>Consider revising position statements on placement and on program assessment.</td>
<td>Ongoing</td>
<td>Placement and Assessment Committee</td>
</tr>
</tbody>
</table>

F. Assist faculty, departments, and colleges to institute innovative practices informed by research.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct webinars on innovative practices informed by research.</td>
<td>Ongoing</td>
<td>AMATYC Committees</td>
</tr>
<tr>
<td>Highlight the IMPACT research chapter through email blasts, webinars, conference sessions, etc.</td>
<td>Ongoing</td>
<td>Standards Committee, RMETYC</td>
</tr>
<tr>
<td>Continue to support Project ACCCESS and their mission to help colleges improve instructional practices.</td>
<td>Ongoing</td>
<td>Project ACCCESS Coordinator, AMATYC Board</td>
</tr>
<tr>
<td>Promote and encourage implementation of IMPACT/IMPACT Live.</td>
<td>Long</td>
<td>Standards Committee, AMATYC Board</td>
</tr>
</tbody>
</table>

G. Disseminate resources and model practices for research-based teaching and learning.
<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote AMATYC's Student Research League and disseminate student research projects.</td>
<td>Ongoing</td>
<td>SRL Team</td>
</tr>
<tr>
<td>Create website for researchers to disseminate research work</td>
<td>Long</td>
<td>RMETYC</td>
</tr>
<tr>
<td>Use AMATYC publications to showcase ways to incorporate research in the classroom.</td>
<td>Ongoing</td>
<td>Editorial Teams, RMETYC</td>
</tr>
<tr>
<td>Use IMPACT Live! Hot Topics to disseminate research ideas.</td>
<td>Ongoing</td>
<td>Standards Committee, Digital Coordinator Chair</td>
</tr>
<tr>
<td>Develop a repository of research-based resources in IMPACT Live!</td>
<td>Ongoing</td>
<td>RMETYC</td>
</tr>
<tr>
<td>Investigate ways to disseminate and promote IMPACT ideas through alternative approaches (e.g., MOOC and online professional development venues).</td>
<td>Ongoing</td>
<td>Standards Committee, Professional Development Coordinator</td>
</tr>
<tr>
<td>Encourage collaboration among AMATYC committees and ANets.</td>
<td>Ongoing</td>
<td>Committee Chairs, ANet Chairs</td>
</tr>
</tbody>
</table>

**Priority IV: Improve mathematics and statistics curricula in the first two years of college.**

A. Seek to provide a strong and relevant mathematics curricular experience for all students.
### Strategies

<table>
<thead>
<tr>
<th>Description</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote the development and value of the STEM and non-STEM pathways.</td>
<td>Ongoing</td>
<td>Pathways JS</td>
</tr>
<tr>
<td>Develop transition paths for students who change from one pathway to another.</td>
<td>Medium, Long</td>
<td>Pathways JS</td>
</tr>
<tr>
<td>Plan a themed issue <em>for MathAMATYC Educator</em> on mathematical pathways.</td>
<td>Short</td>
<td>Journal Team</td>
</tr>
<tr>
<td>Survey existing courses and articulation agreements concerning Associate of Applied Science in Data Science/Analytics</td>
<td>Short</td>
<td>Data Science Subcommittee</td>
</tr>
<tr>
<td>Invite speakers to conferences that address Pathways and new curricular.</td>
<td>Short, Medium</td>
<td>Pathways JS</td>
</tr>
<tr>
<td>Share various approaches, successes or failures of approaches being taken by math departments, e.g. the co-requisite models taking hold around the country</td>
<td>Ongoing</td>
<td>Pathways JS</td>
</tr>
</tbody>
</table>
Facilitate discussions of pathways and successful implementation of pathways via IMPACT Live! | Ongoing | Pathways JS, IMPACT Team
---|---|---
Promote vertical articulation models. | Ongoing | Affiliates
Create a library of effective Pathways models. Advocate for scaling up the most promising models. | Ongoing | Pathways JS, IMPACT Team
Update the position statement on initial placement of students | Short | Placement and Assessment Committee

C. Promote the appropriate instruction and assessment of curricula.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote evidence-based practices in the teaching mathematics</td>
<td>Ongoing</td>
<td>IMPACT Live! Team</td>
</tr>
<tr>
<td>Promote meaningful alternative course assessment.</td>
<td>Ongoing</td>
<td>Placement and Assessment Committee</td>
</tr>
<tr>
<td>Continue to utilize AMATYC’s Webinars and Travelling Workshops to provide relevant professional development opportunities.</td>
<td>Ongoing</td>
<td>TW Coordinator</td>
</tr>
<tr>
<td>Update the position statement on assessment of student learning and mathematical programs</td>
<td>Short, Medium</td>
<td>Placement and Assessment Committee</td>
</tr>
<tr>
<td>Encourage mathematics departments to update curricula.</td>
<td>Ongoing</td>
<td>Division/Department Issues ANet</td>
</tr>
<tr>
<td>Survey the needs of our non-math disciplinary leaders to seek new and innovative curriculum.</td>
<td>Long</td>
<td>Ad hoc committee</td>
</tr>
<tr>
<td>Use IMPACT Live! to share assessment best practices.</td>
<td>Ongoing</td>
<td>IMPACT Live! Team</td>
</tr>
<tr>
<td>Promote the ongoing assessment of the Pathways to determine if they achieve what we want them to achieve.</td>
<td>Long</td>
<td>PJS</td>
</tr>
</tbody>
</table>

D. Encourage the appropriate use of technologies to enhance student learning.
<table>
<thead>
<tr>
<th>Task</th>
<th>Timeline</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the participation of innovative-technology-related IGNITE sessions.</td>
<td>Ongoing</td>
<td>ITLC Committee</td>
</tr>
<tr>
<td>Categorize innovative uses of technology on IMPACT Live!</td>
<td>Short, Medium</td>
<td>IMPACT Team!</td>
</tr>
<tr>
<td>Promote sessions at the conference that effectively emphasize using modern technology to enhance student learning</td>
<td>Short, Medium</td>
<td>Conference Committee</td>
</tr>
<tr>
<td>Include <em>MathAMATYC Educator</em> articles that encourage the appropriate use of technologies to enhance student learning.</td>
<td>Short, Medium</td>
<td>Journal Team</td>
</tr>
<tr>
<td>Promote more conference sessions on online homework management systems and open educational resources (OER).</td>
<td>Short, Medium</td>
<td>Conference Committee</td>
</tr>
<tr>
<td>Encourage the use of statistical software and real data to enhance student learning.</td>
<td>Ongoing</td>
<td>Statistics Committee</td>
</tr>
<tr>
<td>Review the position statement on the Use of Technology, particularly as it relates to Calculus, Differential Equations, etc.</td>
<td>Short, Medium</td>
<td>ITLC, Math Intensive Committees</td>
</tr>
<tr>
<td>Provide Professional Development (conference/traveling workshops/webinars) on using technology in active learning.</td>
<td>Ongoing</td>
<td>TW Coordinator, Webinar Coordinator, Conference Committee</td>
</tr>
<tr>
<td>Facilitate discussions on utilizing current technologies with an awareness of its impact on our students (development of the students’ mathematical understanding), including cost.</td>
<td>Ongoing</td>
<td>ITLC</td>
</tr>
</tbody>
</table>

**E. Facilitate the communication of successful curricular innovations that improve student learning.**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate with other institutions such as CCRC, Dana Center, CCESSE, and Carnegie/WestEd.</td>
<td>Ongoing</td>
<td>Board members</td>
</tr>
<tr>
<td>Disseminate the work of other organizations to AMATYC members.</td>
<td>Ongoing</td>
<td>News Editor, Journal Team, Social Media Committee</td>
</tr>
</tbody>
</table>
Encourage the implementation of using evidence-based practices in the classroom through articles in the *MathAMATYC Educator* | Ongoing | Journal Team
---|---|---
Give conference vendors a venue to share and promote high quality innovative curricular products. | Ongoing | Conference Committee
Seek involvement with gamification into the instruction. | Long | ITLC or other committees
Use AMATYC programs to advance member professional development. | Ongoing | TW Coordinator, Webinar Coordinator
Disseminate the work of the Innovative Teaching and Learning Committee and its members. | Ongoing | ITLC
Disseminate research findings on mathematics in the first two years of college on IMPACT Live! | Ongoing | IMPACT Live! Team
Promote AMATYC position statements to members, member colleges, partner organizations, and affiliates | Ongoing | Board
Use IMPACT Live! to share successful innovations. | Ongoing | IMPACT Live! Team

**Priority V: Build connections within communities of educators across regions, departments, and institutions.**

A. Enrich relationships with and provide support for AMATYC affiliate organizations.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage the affiliate presidents to post in social media highlighting past/future happenings in their affiliate. This can be done in the quarterly PE newsletter to affiliate presidents.</td>
<td>Ongoing</td>
<td>President-Elect</td>
</tr>
<tr>
<td>Improve communication with affiliates</td>
<td>Ongoing</td>
<td>VPs, President-Elect, Affiliate Presidents</td>
</tr>
<tr>
<td>Extend an invitation to affiliates to use traveling workshops to strengthen and expand the relationship between AMATYC and affiliate organizations</td>
<td>Ongoing</td>
<td>Traveling Workshop Coordinator</td>
</tr>
<tr>
<td>Attendance at affiliate conferences by AMATYC VP’s or other board member to promote AMATYC IMPACT</td>
<td>Short</td>
<td>Vice-Presidents</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Continue communication between the AMATYC Board and the affiliate presidents</td>
<td>Ongoing</td>
<td>President–Elect</td>
</tr>
<tr>
<td>Encourage small, perhaps struggling, affiliates to work with bordering state affiliate, local NCTM affiliate or local MAA section.</td>
<td>Ongoing</td>
<td>Vice-Presidents</td>
</tr>
<tr>
<td>Yearly attendance if possible, for each VP to attend the affiliate conferences.</td>
<td>Long</td>
<td>Vice-Presidents</td>
</tr>
<tr>
<td>Offer travelling workshops</td>
<td>Ongoing</td>
<td>Professional Development Committee</td>
</tr>
<tr>
<td>Offer affiliate scholarships to the AMATYC Annual Conference</td>
<td>Ongoing</td>
<td>Executive Board</td>
</tr>
<tr>
<td>Advertise affiliate conferences and leadership</td>
<td>Ongoing</td>
<td>Website</td>
</tr>
<tr>
<td>Encourage inter-affiliate activities</td>
<td>Ongoing</td>
<td>Vice Presidents</td>
</tr>
<tr>
<td>Create a directory on the IMPACT Live website so states can contribute information about state wide Math initiatives.</td>
<td>Long</td>
<td>IMPACT Live Digital Coordinator</td>
</tr>
</tbody>
</table>

B. Support and increase participation in AMATYC’s Academic Committees and AMATYC networks (ANets).

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videotaping of committee chairs to be used in an upcoming webinar.</td>
<td>Completed Revisit every two years</td>
<td>Professional Development Coordinator</td>
</tr>
<tr>
<td>Encourage all committees and ANETs to hold at least one meeting after the conference</td>
<td>Ongoing</td>
<td>Committee Chairs, ANET Leaders, liaisons</td>
</tr>
<tr>
<td>Encourage AMATYC committees and ANets to post information on AMATYC affiliated social media</td>
<td>Ongoing</td>
<td>Committee Chairs, ANET Leaders, liaisons</td>
</tr>
<tr>
<td>Consider creating new Committees and ANets as new trends emerge</td>
<td>Ongoing</td>
<td>Executive Board</td>
</tr>
<tr>
<td>Offer travelling workshops</td>
<td>Ongoing</td>
<td>Professional Development Committee</td>
</tr>
<tr>
<td>Provide Committee and ANet members conference sessions of interest and meeting agendas.</td>
<td>Ongoing</td>
<td>Committee Chairs and ANet Leaders</td>
</tr>
<tr>
<td>Offer training on leadership expectations and responsibilities to Committee Chairs and ANet Leaders</td>
<td>Ongoing</td>
<td>Executive Board</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Provide AMATYC 101 training at the affiliate conferences about the mission and purpose of AMATYC</td>
<td>Ongoing</td>
<td>Vice Presidents</td>
</tr>
<tr>
<td>Create and post videos of ANet Leaders or Committee Chairs advertising their committees and happenings and post them on the Facebook pages</td>
<td>Ongoing</td>
<td>Committee Chairs and ANet Leaders</td>
</tr>
</tbody>
</table>

C. Extend opportunities for local, national, and international networking to those interested in mathematics in the first two years of college.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short, Medium, Long, Ongoing</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host 2018 National Mathematics Summit</td>
<td>Completed</td>
<td>DMC and educational partners</td>
</tr>
<tr>
<td>Creation of Traveling Workshops for promotion of AMATYC IMPACT</td>
<td>Completed</td>
<td>PDC and Standards Committee Chair</td>
</tr>
<tr>
<td>Continue participation in CBMS and encourage collaborations with other CBMS organizations</td>
<td>Ongoing</td>
<td>Executive Director and President</td>
</tr>
<tr>
<td>Sharing of position statements among mathematically minded organizations</td>
<td>Ongoing</td>
<td>Executive Director and President</td>
</tr>
<tr>
<td>Encourage international involvement for AMATYC members</td>
<td>Ongoing</td>
<td>International Math Network leader</td>
</tr>
<tr>
<td>Encourage AMATYC members to make presentations about IMPACT at other professional organization conferences</td>
<td>Ongoing</td>
<td>Standards Committee</td>
</tr>
<tr>
<td>Provide funding to send people to international conferences</td>
<td>Ongoing</td>
<td>Executive Board</td>
</tr>
<tr>
<td>Share best practices related to what we learn from what other countries do in the classroom</td>
<td>Ongoing</td>
<td>International Math ANet</td>
</tr>
<tr>
<td>Organize preconference’s with organizations that have similar interests</td>
<td>Ongoing</td>
<td>Executive Board, Committees and ANets</td>
</tr>
</tbody>
</table>

D. Promote a diverse community of mathematics educators which recognizes and welcomes the unique contributions of all participants.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Timeline - Short,</th>
<th>Responsible Party</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue collaboration with sister organizations to promote AMATYC IMPACT.</td>
<td>Ongoing</td>
<td>Executive Director and President</td>
</tr>
<tr>
<td>Seek professional development opportunities to encourage diversity and equity in within STEM fields</td>
<td>Ongoing</td>
<td>Professional Development Coordinator</td>
</tr>
<tr>
<td>Investigate grants that address the issues of diversity, equity, and social justice</td>
<td>Ongoing</td>
<td>Grants Coordinator</td>
</tr>
<tr>
<td>Development of new faculty through Project ACCCESS</td>
<td>Ongoing</td>
<td>AMATYC organization</td>
</tr>
<tr>
<td>Promote accomplishments of individual AMATYC members through the AMATYC News and MathAMATYC Educator.</td>
<td>Ongoing</td>
<td>Newsletter Editor and Educator Editor</td>
</tr>
<tr>
<td>Promoting and emphasizing that we are the mathematics “in the first two years of college”.</td>
<td>Ongoing</td>
<td>Executive Board</td>
</tr>
</tbody>
</table>
AMATYC Strategic Plan 2024 - 2029

For all involved in mathematics education in the first two years of college, AMATYC will:

1. Provide Access to High Quality Professional Development
   a. Offer professional development via various modalities.
   b. Provide opportunities for reflection and gaining insights into effective practices for teaching mathematical concepts and pedagogical practices.
   c. Address the needs of and offer professional development appropriate for faculty at various stages of their career.

2. Build an Inclusive Environment within AMATYC and within the First Two Years of Mathematics Education
   a. Foster a climate where all feel welcome, valued, and included.
   b. Promote a diverse community of mathematics educators which recognizes and welcomes the unique contributions of all participants.
   c. Encourage and disseminate research focused on student learning for diverse learners.
   d. Extend opportunities for local and regional networking to those interested in mathematics in the first two years of college including enriching relationships with and providing support for AMATYC affiliate organizations.

3. Collaborate and Advocate Externally
   a. Expand the visibility of AMATYC, locally, nationally and internationally by strengthening collaborations with other organizations.
   b. Expand student access to mathematics and statistics, particularly students from under-represented groups.
   c. Communicate and disseminate the AMATYC Standards, AMATYC publications, and national initiatives.
   d. Support classroom research on teaching and learning.

4. Provide Resources for the Mathematics Community
   a. Propagate and facilitate the sharing of research-based teaching, learning practices, and assessment methods.
   b. Develop, update, and maintain position statements.
   c. Promote and develop current and relevant standards.
   d. Share tools for faculty that create a strong and relevant mathematics experience for all students, including successful curricular innovations.
AMATYC Mission Statement

The American Mathematical Association of Two-Year Colleges (AMATYC) mission is to provide high quality professional development, to build inclusive communities of scholars, and to collaborate with and advocate for all involved in mathematics education in the first two years of college.

AMATYC’s Vision

To be the leading voice and resource for excellence and inclusion in the first two years of mathematics in colleges and universities.

AMATYC’s Core Values

Core Values represent core priorities, traits, or qualities in the organization’s culture that are considered worthwhile.

<table>
<thead>
<tr>
<th>Core Value</th>
<th>Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellence</td>
<td>Supporting the design and implementation of a quality educational experience in mathematics for students that uses practices proven effective by research.</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>Providing a welcoming environment and ensuring full access to opportunities and resources for all students and faculty.</td>
</tr>
<tr>
<td>Community</td>
<td>Providing opportunities for networking, growth, and encouraging mutual respect for other mathematics professionals for the betterment of the mathematics teaching profession.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Creating, developing, implementing, and redefining instructional strategies, curricula in mathematics, current technology, and classroom practices. Determine successful practices based on research of how students best learn mathematics and how faculty best teach mathematics.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Safeguarding the qualities of honesty, sincerity, trustworthiness, global consciousness, and a code of sound moral professional principles.</td>
</tr>
<tr>
<td>Professional Development</td>
<td>Building expertise and exhibiting leadership in the teaching and learning of mathematics, enhancing personal growth, and improving teaching methods and effectiveness as an ongoing responsibility.</td>
</tr>
</tbody>
</table>
Conference Site Selection

AMATYC is excited to announce that our 2026 Annual Conference will be held in Philadelphia, PA, November 19-22, 2026.

Dates and locations for other future conferences are:
Atlanta, GA, November 14 – 17, 2024
Reno, NV, November 13 – 16, 2025
Philadelphia, PA, November 19 – 22, 2026
Spokane, WA, November 11 – 14, 2027
Phoenix, AZ, November 9 – 12, 2028
Delegate Assembly Motion

To: AMATYC Delegate Assembly

Year: 2023

Subject: Content Standards Update

Submitted by: Julie Phelps

Date Submitted: 09/22/23

Motion: That the AMATYC Delegate Assembly
approves the updates to the Standards for Content.

Rationale:
The AMATYC Standards Team is responsible for establishing and implementing a process of regular review of the standards. The AMATYC standards documents were published in 1995 and many changes have taken place in the mathematics and statistics fields since then. This is an effort to update the Standards for Content to align with the current trends of today.

Action taken by the Delegate Assembly on: 11/18/23

_____ Approved   _____ Postponed Until _________   _____ Withdrawn
_____ Disapproved _____ Returned for Further Study   _____ Other
STANDARDS FOR CONTENT

Mathematics education has traditionally focused on content knowledge. Within this tradition, "knowing mathematics" meant knowing certain pieces of subject matter. This document AMATYC takes the position that knowing mathematics means being able to truly understand mathematics and statistics one must know it conceptually, contextually, and procedurally and know that problem solving is the heart of doing mathematics. The successful problem solver can view the world from a mathematical perspective (Schoenfeld, 1992).

Students gain develop the powerability to solve meaningful problems through in-depth study of specific mathematics and statistics topics that build on their prior knowledge and experiences. When presented in the context of relevant applications, abstract topics grow naturally out of the need to describe or represent the patterns that emerge. In general, emphasis on the meaning, use, and use communication of mathematical and statistical ideas must increase, and attention be emphasized. Attention to rote memorization and manipulation must decrease.

The content AMATYC’s Standards for Content elaborates on the inclusion of threads throughout the curriculum related to numeracy, symbolism and algebra, geometry and measurement, functions, discrete mathematics, statistics and probability, and deductive proof. The standards that follow are not meant to outline a set of courses. Rather, they are strands to be included in an introductory any post-secondary mathematics program pathways in whatever structural form they may take. The specific themes were selected so that adult students learners can develop the knowledge and skills needed to function as productive workers and discerning citizens as well as, making data-based decisions and evaluating mathematical and statistical arguments. Students should also be equipped to pursue more advanced study in mathematics and other disciplines.

Standard C-1: Number Sense Numeracy

Students will accurately process, interpret, and communicate numerical information.

“Numeracy is the ability to process, interpret, and communicate numerical, quantitative, spatial, statistical, even mathematical, information, in ways that are appropriate for a variety of contexts, and that will enable a typical member of the culture or subculture to participate effectively in activities that they value.” (Evans, 2000) Students should be able to identify and perform appropriate arithmetic operations, as well as reason and draw conclusions from numerical information.

Number sense includes the ability to perform arithmetic operations, to estimate reliably, to judge the reasonableness of numerical results, to understand orders of magnitude, and to think proportionally. Suggested topics include pattern
recognition, data representation and interpretation, estimation, proportionality, and comparison, and make sense of data (especially large data sets) to recognize patterns. This mathematical reasoning may be enhanced through the use of technology.

Standard C-2: Symbolism and Algebra

Students will be able to interpret algebraic symbols, translate problem situations/problems into their appropriate symbolic representations, and use those representations to solve problems to effectively answer questions and make predictions.

Students will move beyond concrete numerical operations and use abstract conceptual algebraic thinking and symbols to solve problems. Students will represent mathematical situations symbolically and use a combination of appropriate algebraic, graphical, and numerical methods to form conjectures about the problems. Suggested topics include derivation of formulas, translation of realistic problems into mathematical statements, conversion between different representations, and the solution of equations by appropriate graphical, numerical, and algebraic methods.

Standard C-3: Geometry and Measurement

Students will develop a spatial and measurement sense, learn to visualize and use geometric models, recognize measurable attributes, and use and convert units of measure.

Geometry is the study of visual patterns. Every physical object has a shape, so every physical object is geometric. Furthermore, mathematical objects can be pictured geometrically. For example, real numbers are pictured on a number line, forces are pictured with vectors, and statistical distributions are pictured with the graphs of curves. Modern The use of dynamic geometry software allows for efficient integration of geometric concepts throughout the curriculum, allowing students to more effectively visualize geometric visualization-representations.

Students will demonstrate their abilities to visualize, compare, and transform objects using geometric representations. Students will develop a spatial sense including the ability to draw one-(either by hand or with the use of technology) one-dimensional, two-dimensional, and three-dimensional objects from different perspectives, and extend the concept, such as vectors, to higher dimensions. Their knowledge of geometry will enable them to determine particular dimensions, area, perimeter, and volume of common plane and solid figures. Suggested topics might include comparison of geometric objects (including congruence and similarity), graphing, prediction from graphs, measurement, and vectors.

Standard C-4: Function
Students will demonstrate understanding of the concept of function by several means (verbally, numerically, graphically, and symbolically), and verbally - and incorporate it as a central theme into their use of mathematics.

Key curricular issues continue to stimulate dialogue and educational research. Since the National Research Council recommended in 1989 that “If it does nothing else, undergraduate mathematics should help students develop function sense...” (National Research Council, 1989), considerable research has been conducted on what it means for students to have an understanding of function. Studies report that a well-developed understanding of function correlates closely with success in calculus, as well as facilitating the transition to advanced mathematical thinking (Tall, 1992). In addition, faculty continue to search for methods to develop a student’s understanding of the concept of variable. Students who are able to view variables as representing quantities whose values change dynamically along a continuum have been shown to have ready access to fundamental ideas, such as rate of change and limits, and exhibit higher levels of achievement in mathematics. (Ursini, S., & Trigueros, M., 1997, Jacobs, S., 2002)

Students will know when a relation is a function. Students will use function notation and perform operations on functions. Students will interpret functional relationships between two or more variables, and formulate such relationships when presented in data sets, and transform functional information from one representation to another, tabular, graphical, symbolic, or verbal representations as well as convert between representations. Suggested topics include generalization about families of functions, transformations of functions, use of functions to model realistic problems, and the behavior of functions.

Standard C-5: Discrete Mathematics

Students will be able to recognize and use discrete mathematical algorithms and develop combinatorial abilities in order to solve problems of finite character and enumerate sets without direct counting.

Problem situations This standard provides guidance for incorporating topics from discrete mathematics courses (which may require precalculus or calculus as prerequisites) into introductory college mathematics courses. Applications in the social and behavioral sciences, business, computing, and other areas frequently do not exhibit the continuous nature so readily commonly treated by techniques traditionally studied in introductory college mathematics pathways. Rather, the problems these applications involve discrete objects and focus on determining a count, logic and enumeration (Dossey, 1991; Hart, 1991). This standard does not imply that recently developed college courses in discrete mathematics are included in introductory college mathematics. Such courses commonly require precalculus or calculus as prerequisites. The standard echoes the recommendations made in the NCTM Standards (NCTM, 1989, 2008) and in Reshaping College Mathematics (Siegel, 1989); namely, the conceptual framework of discrete mathematics should be integrated throughout the introductory mathematics curricula pathways, as appropriate, in order to improve students' problem-solving skills and prepare them for the study of higher levels of
mathematics as well as for their careers. **Suggested topics** in discrete mathematics **may include** set theory, logic, graph theory, game theory, algorithms, proofs, sequences, series, permutations, combinations, recursion, difference equations, linear programming, finite graphs, voting systems, and matrices.

**Standard C-6: Statistics and Probability and Statistics**

Students will **analyze** data to inform decisions and use probability and statistical models to make inferences about real-world situations around them.

The basic concepts of probability and descriptive and inferential statistics, data science, and probability should be integrated throughout the introductory college mathematics curriculum at an intuitive level using relevant contexts and appropriate technology. Students will gather, organize, display, should recognize and describe variability, take variability into account when making decisions, as well as make and summarize data. They will draw conclusions or make predictions from the data and assess the relative chances for certain events happening. Suggested topics include basic sampling techniques, tabulation techniques, appropriate methods for collecting data, creating and interpreting charts and graphs, data transformation, curve fitting, measures of center and dispersion, simulations, probability laws, and sampling distributions, data visualizations, sampling variability, drawing conclusions from sample data, modeling, applications of probability, and the ethical use of data.

**Standard C-7: Deductive Proof**

Students will appreciate the deductive nature of mathematics as an identifying characteristic of the discipline; recognize the roles of definitions, axioms, and theorems; and identify and construct valid deductive arguments.

The dependence use of mathematics on deductive proof in mathematics sets it apart as a unique area of human endeavor. While not being the main focus of instruction in introductory college mathematics, **where appropriate to enhance student understanding of mathematical concepts**, mathematical proofs, including indirect proofs and mathematical induction, will be introduced **where they will enhance student understanding of mathematical concepts**. Students will engage in exploratory activities that will lead them to form statements of conjecture, test them by seeking counterexamples, and identify and, in some instances, construct arguments verifying or disproving the statements. A variety of proof techniques, including the use of manipulatives, diagrams, and pictures to create proofs without words or symbols, should also be encouraged.
STANDARDS FOR CONTENT

AMATYC takes the position that to truly understand mathematics and statistics one must know it conceptually, contextually, and procedurally and know that problem solving is the heart of doing mathematics. The successful problem solver can view the world from a mathematical perspective (Schoenfeld, 1992).

Students develop the ability to solve meaningful problems through in-depth study of mathematics and statistics topics that build on their prior knowledge and experiences. When presented in the context of relevant applications, abstract topics grow naturally out of the need to describe or represent the patterns that emerge. In general, the meaning, use, and communication of mathematical and statistical ideas must be emphasized. Attention to rote memorization and manipulation must decrease.

AMATYC’s Standards for Content elaborates on the inclusion of threads throughout the curriculum related to numeracy, symbolism and algebra, geometry and measurement, functions, discrete mathematics, statistics and probability, and deductive proof. The standards that follow are not meant to outline a set of courses. Rather, they are strands to be included in any post-secondary mathematics pathways in whatever structural form they may take. The specific themes were selected so that learners can develop the knowledge and skills needed to be discerning citizens, making data-based decisions and evaluating mathematical and statistical arguments. Students should also be equipped to pursue more advanced study in mathematics and other disciplines.

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Students will move beyond concrete numerical operations and use algebraic thinking and symbols to solve problems. Students will represent mathematical situations using a combination of appropriate symbolic, graphical, and numerical methods to form conjectures about the problems. Applications of algebraic thinking include derivation of formulas, translation of realistic problems into mathematical statements, conversion between different representations, and the solution of equations by appropriate methods.

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Students will use data to inform decisions and understand the world around them.

The basic concepts of statistics, data science, and probability should be integrated throughout the curriculum using relevant contexts and appropriate technology. Students should recognize and describe variability, take variability into account when making decisions, as well as make and communicate data-based arguments. Suggested topics include appropriate methods for collecting data, creating and interpreting data visualizations, sampling variability, drawing conclusions from sample data, modeling, applications of probability, and the ethical use of data.
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To: AMATYC Delegate Assembly  
Year: 2023  
Subject: Intellectual Dev. Standards Update  
Submitted by: Julie Phelps  
Date Submitted: 09/22/23

Motion: That the AMATYC Delegate Assembly approves the updates to the Standards for Intellectual Development.

Rationale: 
The AMATYC Standards Team is responsible for establishing and implementing a process of regular review of the standards. The AMATYC standards documents were published in 1995 and many changes have taken place in the mathematics and statistics fields since then. This is an effort to update the Standards for Intellectual Development to align with the current trends of today.
STANDARDS FOR INTELLECTUAL DEVELOPMENT

At the conclusion of their introductory collegiate college studies, all students should have developed progressed in their development of certain general intellectual mathematical abilities as well as and of other competencies and knowledge. Introductory college courses in English, psychology, chemistry, or history attempt across disciplines should be designed to broaden an existing educational foundation. In a similar way, an introductory college and allow students to appreciate mathematics program should help students see mathematics as an enriching and empowering discipline.

AMATYC’s Standards for Intellectual Development include the areas of problem solving, modeling, reasoning, connecting with other disciplines, communicating, using technology, developing mathematical prowess, and linking multiple representations.

Standard 1-1: Problem Solving

Students will engage in substantial mathematical relevant, authentic problem solving and mathematical and statistical thinking.

Students will use problem-solving strategies that require persistence, the ability to recognize inappropriate analysis of assumptions, and intellectual risk taking rather than simple procedural approaches and application of appropriate procedures. These strategies should include posing questions; organizing information; drawing diagrams; constructing visual representations; solving similar, simpler problems; analyzing situations through trial and error, graphing, and modeling; and drawing conclusions by translating, illustrating, and verifying results. The students should be able to communicate and interpret their results.

Emphasizing problem solving will make mathematics more meaningful to students. The problems used should be relevant to the needs and interests of the students in the class. Such problems provide a context as well as a purpose for learning new skills, concepts, and theories.

Standard 1-2: Modeling

Students will learn mathematics and statistics through modeling real-world situations.

Students will participate in the mathematical and statistical modeling of situations from the world around them and use the models to make predictions and informed decisions. Swetz (1991) describes the mathematical modeling process as "(1) identifying the problem, including the conditions and constraints under which it exists; (2) interpreting the problem mathematically; (3) employing the theories and tools of mathematics to obtain a solution to the problem; (4) testing and interpreting the solution in the context of the problem; and (5) refining the solution techniques to obtain a 'better' answer to the
problem under consideration, if necessary” (pp. 358-359). In some cases, faculty may select problem situations and ask students to collaborate on the development of models. In other cases, students may be asked to evaluate previously developed models. Does the model behave as intended in that the equations fit the assumptions of the model? How well does the model agree with the real world it is supposed to represent? Does the model perform well on a data set different from the one for which it was developed? (358-359). The statistical modeling process is similar but also involves connecting data, chance, and context (Pfannkuch, et.al, 2018).

Whether students develop their own models or evaluate models that are given to them, they should look beyond how well a proposed model fits a set of data and attempt to provide contextual, mathematical, statistical, or scientific reasons for why the model is valid.

**Standard 1-3: Reasoning**

Students will expand their mathematical reasoning skills as they develop convincing mathematical arguments.

**Standard 1-3: Reasoning**

Students will expand their mathematical and statistical reasoning skills as they develop convincing mathematical, statistical, and data-based arguments.

Students will regularly apply inductive and deductive reasoning techniques to build convincing mathematical, statistical, and/or data-based arguments. They will develop conjectures on the basis of past experiences, previous knowledge, data, and intuition and test these conjectures by using logic and deductive and inductive proof, by framing examples and counterexamples, and by probabilistic and statistical reasoning. They will explore the meaning, then draw appropriate conclusions and role of mathematical identities, support them graphically or numerically, and verify them algebraically or geometrically. Finally, they will communicate their argument convincingly. In addition, students will judge the validity of mathematical, statistical, and/or data-based arguments and draw appropriate conclusions using the same reasoning skills.

**Standard 1-4: Connecting Other Disciplines**

Students will develop the view that mathematics, statistics, and data science are growing disciplines, are interrelated with human culture, and understand their connections to other disciplines.

If students are to gain a sense that mathematics, statistics, and data science are growing disciplines, course content must include current and relatable topics developed since the eighteenth century. Topics such as algorithms needed for computer-based solution processes, the use of probability in understanding chance and randomization, modern approaches to statistical inference and data visualization, and the applications of non-Euclidean geometries. These topics lend themselves to a
discussions of who developed the ideas, when they were developed, and what kind of human endeavors motivated their development, which reinforces recognition of math in all parts of life and cultures. Students will need to research sources other than standard mathematics textbooks to determine how mathematics provides a language for the sciences; plays a role in art, music, and literature; is applied by economists; is used in business and manufacturing; and has had an impact on history.

Standard 1-5: Communicating

Students will acquire the ability to read, write, listen to, and speak the languages of mathematics, statistics, and data science.

Students will acquire the skills necessary to communicate mathematical ideas and procedures, and results using appropriate mathematical and statistical vocabulary and notation. Students will learn the ability to read and listen to mathematical presentations and arguments with understanding. Communication of results and through appropriate models and visualizations. Furthermore, mathematics, statistics, and data science faculty will adopt instructional strategies that develop both oral and written communication skills within a context of real applications relevant to the particular group of students. As students learn to speak and write about mathematics, statistics, and data science, they develop mathematical power and become better prepared to use mathematics beyond the classroom.

Standard 1-6: Using Technology

Students will use appropriate technology to enhance their mathematical thinking and conceptual understanding and to solve mathematical problems. As students learn to use technology, they can test conjectures, explore ideas, and verify that theorems are true in specific instances. For example, students can solve quadratic equations and inequalities graphically and then use their knowledge of the graphical solution to clarify the algebraic approach (Hector, 1992).
Second, students will use technology naturally and routinely as a tool to aid in the solution of realistic mathematical problems. "Those who use mathematics in the workplace—accountants, engineers, scientists—rarely use paper-and-pencil procedures anymore...Electronic spreadsheets, numerical analysis packages, symbolic computer systems, and sophisticated computer graphics have become the power tools of mathematics in industry" (NRC, 1989, p. i). In addition, graphing calculators, dynamic geometry software, matrix software, and statistical packages and to validate those solutions. Students should be included among the able to judge the reasonableness and accuracy of the results generated by technology staples to be used by students.

Technology should be used to enhance the study of mathematics but should not become the main focus of instruction. The amount of time that students spend learning how to use computers and calculators effectively must be compatible with the expected gain in learning mathematics.

Standard 1-7: Developing Mathematical Power Prowess

Students will engage in rich experiences in the study of mathematics, statistics, data science, and related fields that encourage independent, nontrivial exploration in mathematics, and will develop and reinforce tenacity and confidence in their abilities to use mathematics, and inspire them to pursue the study of mathematics and related disciplines further their studies in these fields. All students will have opportunities to be successful in doing meaningful mathematics that fosters develop self-confidence and persistence. They will engage in while engaging with mathematics, statistics, and data science problem-solving. These problems that dewill not always have unique answers solutions but, rather, will provide experiences that develop the ability to conduct independent explorations. At the same time, they will learn to abstract mathematical principles in order to promote transfer of problem-solving strategies among to a variety of contexts (Druckman & Bjork, 1994) and to better appreciate mathematics, statistics, and data science as a discipline. Furthermore, they will disciplines. They will visualize themselves using mathematics and statistics effectively in their professional work and everyday lives. They will develop an awareness of careers in mathematics and related disciplines and have a vision of themselves using mathematics effectively in.

Standard 1-8: Linking Multiple Representations

Students will select, use, and translate among mathematical and statistical representations—numerical, graphical, symbolic, and verbal—to organize information and solve problems using a variety of techniques.

Students will explore complex problems, using multiple approaches, and explain their chosen fields’ solutions in both oral and written form. Students will be motivated to go beyond the mastery of basic operations, statistical algorithms, or algebraic
manipulations to a real understanding of how to use mathematics and statistics, the meaning of the answers, and how to interpret them.
STANDARDS FOR INTELLECTUAL DEVELOPMENT

At the conclusion of the first two years of their college studies, all students should have progressed in their development of certain intellectual abilities and of other competencies and knowledge. Introductory college courses across disciplines should be designed to broaden an existing educational foundation and allow students to appreciate mathematics, statistics, and data science as powerful reasoning and general problem solving tools. AMATYC’s Standards for Intellectual Development include the areas of problem solving, modeling, reasoning, connecting with other disciplines, communicating, using technology, developing mathematical prowess, and linking multiple representations.

Standard 1-1: Problem Solving

Students will engage in relevant, authentic problem solving and mathematical and statistical thinking.

Students will use problem-solving strategies that require persistence, analysis of assumptions, intellectual risk taking and application of appropriate procedures. These strategies should include posing questions; organizing information; constructing visual representations; solving similar, simpler problems; analyzing situations through trial and error, graphing, and modeling; and drawing conclusions by translating, illustrating, and verifying results. The students should be able to communicate and interpret their results.

Emphasizing problem solving will make mathematics more meaningful to students. The problems used should be relevant to the needs and interests of the students in the class. Such problems provide a context as well as a purpose for learning new skills, concepts, and theories.

Standard 1-2: Modeling

Students will learn mathematics and statistics through modeling real-world situations.

Students will participate in the mathematical and statistical modeling of situations from the world around them and use the models to make predictions and informed decisions. Swetz (1991) describes the mathematical modeling process as "(1) identifying the problem, including the conditions and constraints under which it exists; (2) interpreting the problem mathematically; (3) employing the theories and tools of mathematics to obtain a solution to the problem; (4) testing and interpreting the solution in the context of the problem; and (5) refining the solution techniques to obtain a 'better' answer to the problem under consideration, if necessary" (pp. 358-359). The statistical modeling process is similar but also involves connecting data, chance, and context (Pfannkuch, et.al, 2018).
Whether students develop their own models or evaluate models that are given to them, they should look beyond how well a proposed model fits a set of data and attempt to provide contextual, mathematical, statistical, or data-based reasons for why the model is valid.

**Standard 1-3: Reasoning**

**Students will expand their mathematical and statistical reasoning skills as they develop convincing mathematical, statistical, and data-based arguments.**

Students will regularly apply inductive and deductive reasoning techniques to build convincing mathematical, statistical, and/or data-based arguments. They will develop conjectures on the basis of previous knowledge, data, and intuition and test these conjectures by using logic and deductive and inductive proof, by framing examples and counterexamples, and by probabilistic and statistical reasoning. They will then draw appropriate conclusions and communicate their argument convincingly. In addition, students will judge the validity of mathematical, statistical, and/or data-based arguments using the same reasoning skills.

**Standard 1-4: Connecting with Other Disciplines**

**Students will develop the view that mathematics, statistics, and data science are growing disciplines, are interrelated with human culture, and understand their connections to other disciplines.**

If students are to gain a sense that mathematics, statistics, and data science are growing disciplines, course content must include current and relatable topics such as algorithms needed for computer-based solution processes, the use of probability in understanding chance and randomization, modern approaches to statistical inference and data visualization, and the applications of non-Euclidean geometries. These topics lend themselves to discussions of who developed the ideas, when they were developed, and what kind of human endeavors motivated their development, which reinforces recognition of math in all parts of life and cultures. Students should develop an appreciation of how mathematics and statistics provide a language for the sciences; play a role in art, music, and literature; are applied by social scientists and practitioners in health care fields; are used in business and manufacturing; and have impacted history.

**Standard 1-5: Communicating**

**Students will develop the ability to read, write, listen to, and speak the languages of mathematics, statistics, and data science.**

Students will develop the skills necessary to communicate ideas and procedures, and results using appropriate mathematical and statistical vocabulary and notation. Students will develop the ability to communicate the results of analyses through appropriate models and visualizations. Furthermore, mathematics, statistics, and data science
faculty will adopt instructional strategies that develop both oral and written communication skills within a context of authentic applications relevant to a diverse student population. As students learn to speak and write about mathematics, statistics, and data science, they develop acumen and become better prepared to use this knowledge and these skills beyond the classroom.

**Standard 1-6: Using Technology**

Students will use appropriate technology to enhance their thinking and conceptual understanding and to solve problems.

Students will develop an ability to use technology to enhance their study of mathematics, statistics, and data science. Current technology can be used to aid in the understanding, exploration, and visualization of concepts and the analysis of data. Students can use technology to test conjectures, explore ideas, and verify that theorems are true in specific instances. They should also embrace technology as a tool to aid in the solution of authentic problems and to validate those solutions. Students should be able to judge the reasonableness and accuracy of the results generated by technology.

**Standard 1-7: Developing Mathematical Prowess**

Students will engage in rich experiences in the study of mathematics, statistics, data science, and related fields that encourage independent, nontrivial exploration and will develop and reinforce tenacity and confidence in their abilities and inspire them to further their studies in these fields.

Students will develop self-confidence and persistence while engaging with mathematics, statistics, and data science problem-solving. These problems will not always have unique solutions but will provide experiences that develop the ability to conduct independent explorations. At the same time, they will learn to transfer problem-solving strategies to a variety of contexts (Druckman & Bjork, 1994) and appreciate mathematics, statistics, and data science as disciplines. They will visualize themselves using mathematics and statistics effectively in their professional work and everyday lives. They will develop an awareness of careers in mathematics and related disciplines.

**Standard 1-8: Linking Multiple Representations**

Students will select, use, and translate among mathematical and statistical representations—numerical, graphical, symbolic, and verbal—to organize information and solve problems using a variety of techniques.

Students will explore complex problems, using multiple approaches, and explain their solutions in both oral and written form. Students will be motivated to go beyond the mastery of basic operations, statistical algorithms, or algebraic manipulations to a real
understanding of how to use mathematics and statistics, the meaning of the answers, and how to interpret them.
To: AMATYC Delegate Assembly

Year: 2023

Subject: Pedagogy Standards Update

Submitted by: Julie Phelps

Date Submitted: 09/22/23

Motion: That the AMATYC Delegate Assembly approves the updates to the Standards for Pedagogy.

Rationale:
The AMATYC Standards Team is responsible for establishing and implementing a process of regular review of the standards. The AMATYC standards documents were published in 1995 and many changes have taken place in the mathematics and statistics fields since then. This is an effort to update the Standards for Pedagogy to align with the current trends of today.
STANDARDS FOR PEDAGOGY

One of the most widely accepted ideas within the mathematics community is that students should understand mathematics as opposed to thoughtlessly grinding out answers.

But achieving this goal has been like searching for the Holy Grail. There is a persistent belief in the merits of the goal but designing school learning environments that successfully promote understanding has been difficult (Hiebert & Carpenter, 1992, p. 65)

Constructivism [see Crocker (1991)], which has become a popular theory for linking teaching to student learning, is based on the premise that knowledge cannot be "given" to students. Rather, it is something that they must construct for themselves. However, Resnick and Klopfer (1989) are quick to point out that constructivism does not imply that faculty should get out of the way and let students learn by themselves. All of the traditional questions remain: "how to present and sequence information, how to organize practice and feedback, how to motivate students, how to integrate laboratory activities with other forms of learning, and how to assess learning" (p. 4). "The goal is to stimulate and nourish students' own mental elaborations of knowledge and to help them grow in their capacity to monitor and guide their own learning and thinking" (p. 4).

While constructivist theories may be interpreted differently by different educators and accepted to varying degrees, Brophy and Good (1986) point out that educational research shows that instructional strategies, be they constructivist or not, have a dramatic impact on what students learn. Two themes cut across research findings: "One is that academic success is influenced by the amount of time that students spend on appropriate academic tasks. The second is that students learn more efficiently when their teachers structure new information for them and help them to relate it to what they already know" (p. 366).

The standards for pedagogy that follow are compatible with the constructivist point of view. They-When planning a lesson, an instructor should start with the question "what should students do?", rather than "what should I do?" AMATYC supports the idea that learning is a social endeavor; therefore, it is important that we humanize the culture of learning mathematics, statistics, and data science (Yeh & Otis, 2019). The most impactful classrooms use learner-centered pedagogies, such as active learning, in a classroom environment that fosters a sense of community (CBMS, 2016; NCTM, 2014). Faculty must create frequent opportunities for students to develop and demonstrate conceptual, contextual, and procedural understanding of topics. This requires pedagogical practices that may include students using concrete tools to model abstract ideas, engaging in mathematical and statistical discourse, connecting different representations of the same idea, using prior knowledge to construct new knowledge, and understanding connections between the mathematics and statistics they are learning and what they already know.

Progress has been made toward the goal of more effectively teaching students to deeply understand mathematics and statistics; however, there is a need for more faculty
to consistently identify and use pedagogical strategies that promote equitable student learning. AMATYC’s Standards for Pedagogy that follow recommend the use of instructional strategies that provide for student activity and student-constructed knowledge. Evidence-based strategies which can be incorporated by most teachers without requiring substantial faculty development are highlighted in these standards. Furthermore, the standards are in agreement with the instructional recommendations contained in *Professional Standards for Teaching Mathematics* (NCTM, 1991).

**Standard P-1: Teaching with Technology**

Mathematics faculty will model the use of appropriate technology in the teaching of mathematics so that students can benefit from the opportunities it presents as a medium of instruction.

The use of technology is an essential part of an up-to-date curriculum. Faculty will use dynamic computer software to aid students in *Common Vision* (2015). The standards include active learning mathematics concepts and will model the appropriate use of technology as tools to solve mathematical problems. The effort spent on teaching students to use technology should be an investment in their future ability to use mathematics. Emphasis should be placed on the use of high-quality, flexible tools that enhance learning and tools they are likely to encounter in future work, making mathematical connections, multiple representations and approaches, teaching with technology, experiencing mathematics and statistics, and assessment of student learning.

In addition, faculty will use technology as a medium of instruction. Instructional media such as videotapes and computers allow students to progress at their own pace and make mistakes without fearing peer or professional judgment. The use of technology within the instructional process should not require more time. In fact, the use of technology, coupled with a decreased emphasis in some traditional content areas, should provide the time that is needed to implement the needed reforms in mathematics education.

**Standard P-1: Active Learning**

Faculty will facilitate active learning that promotes increased and deeper mathematical and statistical reasoning abilities in students. Widespread implementation of high-quality active learning can help reduce or eliminate achievement gaps in STEM courses and promote equity in higher education.

The Conference Board of Mathematical Sciences (CBMS) uses the phrase “active learning to refer to classroom practices that engage students in activities, such as reading, writing, discussion, or problem solving, that promote higher-order thinking” and calls on institutions to incorporate active learning into post-secondary instruction (2016).

Active learning can be further defined by the following guiding principles: (1) students’ deep engagement in mathematical thinking (PRoficiency), (2) instructors’ interest in and use of student thinking (OWnership), (3) student-to-
student interaction (Engagement), and (4) instructors’ attention to equitable and inclusive practices (Student Success). Active learning benefits all students and offers disproportionately greater benefits for individuals from underrepresented groups by reducing achievement gaps in exam scores and passing rates (Laursen & Rasmussen, 2019).

Learning occurs when students construct their own knowledge through collaboration and when students are cognitively engaged with mathematics (Smith, et al, 2021). Participation in mathematical and statistical discourse, as well as writing and reading about mathematical and statistical ideas teaches students how to communicate about mathematics both orally and in writing. This creates a sense of community in the classroom and allows students to learn to work effectively to solve challenging problems. “For students from different socioeconomic, cultural, and educational backgrounds, and for students with different approaches to learning and social interaction, a supportive community of learners can be cultivated using AL techniques.” (CBMS, 2016, para. 13)

“Working in groups also provided less confident or less able students with opportunities to explain, question, agree and disagree and test their thinking in a less threatening context” (Sharma, 2015).

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**Standard P-2: Interactive and Collaborative Learning**

Mathematics faculty will foster interactive learning through student writing, reading, speaking, and collaborative activities so that students can learn to work effectively in groups and communicate about mathematics both orally and in writing.

Mathematical literacy is achieved through an understanding of the signs, symbols, and vocabulary of mathematics. This is best accomplished when students have an opportunity to read, write, and discuss mathematical problems and concepts (NCIM, 1989). The following types of experiences will be encouraged in college classrooms: cooperative learning (Crocker, 1992; Becker & Pence, 1994); oral and written reports presented individually or in groups; writing in journals; open ended projects; and alternative assessment strategies such as essay questions and portfolios (Leitzel, 1991; NCIM, 1991).

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**Standard P-3: Connecting with Other Experiences**

Mathematics faculty will actively involve students in meaningful mathematics problems that build upon their experiences, focus on broad mathematical and statistical themes, and build connections within branches of mathematics, and between mathematics and other disciplines so that students will view mathematics and statistics as a connected whole relevant to their lives.

Mathematics must not be presented as isolated rules and procedures. Students must have the opportunity to observe the interrelatedness of scientific and
mathematical investigation and see first-hand how it connects to their lives. Students who understand the role that mathematics has played in their cultures and the contributions of their cultures to mathematics are more likely to persevere in their study of the discipline. Making mathematics and statistics relevant and meaningful is the collective responsibility of faculty, administrators, and producers of instructional materials. Administrators have the responsibility of supporting faculty in this effort.

Standard P-4: Multiple Approaches

Mathematics faculty will model the use of multiple approaches—numerical, graphical, symbolic, and verbal—to help students learn a variety of techniques for solving problems.

Mathematical power includes the ability to solve many types of problems. Solutions to complex problems require traditional techniques and the ability to work through open-ended problem situations (Pollak, 1987). College mathematics faculty will provide rich disconnect between classroom mathematics and real-world mathematics. Mathematics and statistics must not be presented as isolated sets of rules and procedures, but rather as disciplines that arose out of, and are connected to, the needs of other fields. Further, students should be encouraged to make explicit connections between mathematical concepts, including those that may have been traditionally compartmentalized. Topics learned in one branch of mathematics should be explicitly aligned with topics from another, e.g., how principles learned in arithmetic can be generalized to principles in algebra, which can then be connected to topics in geometry.

Students must have the opportunity to observe the interrelatedness between scientific and statistical, and mathematical investigation, and see first-hand how mathematics and statistics connect to their lives. Curriculum should include meaningful mathematics work that allow students to bring their experiences into the classroom. Authentic applications help students see how mathematics and statistics are relevant in their lives and in the world around them (Benson-O'Connor, 2019; GAISE, 2016).

Understanding that mathematics and statistics have relevance to their life and to the world in general improves student motivation to learn and ability to connect ideas. Students who understand the role that mathematics and statistics have played in their cultures and the contributions of their cultures to mathematics and statistics are more likely to persevere in their study of the discipline. Faculty should include aspects of mathematics history and contemporary mathematics that provide counterexamples to the pervasive Eurocentric bias found in modern mathematics. Instructional activities should provide examples of how mathematics and statistics are used in a variety of cultures, and by people of every race, ethnicity, gender identity, class, and other social groups. Additionally, instruction
should be culturally relevant, culturally responsive, and culturally sustaining (Alim, 2017).

**P-3 Multiple Problem Solving Strategies**

Faculty should help students become flexible problem solvers by allowing students to discover multiple problem solving strategies and to identify efficient strategies.

Flexibility in problem solving is an important element of mathematical proficiency (CCSSI, 2012). Faculty should provide opportunities for students to discover their own problem solving strategies and reflect on them (Star & Rittle-Johnson, 2007). Flexibility develops from exposure to multiple methods, comparison of worked examples, prompting and direct instruction, invention of a second method for a previously solved problem, and the opportunity to collaborate with peers (Newton et al., 2020). Experience with multiple problem solving strategies helps students adaptively choose more efficient strategies based on the content or context of the problem (Rittle-Johnson & Star, 2007).

**P-4 Multiple Representations of Mathematical Concepts**

Faculty will provide opportunities for students to explore complex problems, guide them to solutions through multiple approaches, and encourage both oral and written responses. Use, share, and make sense of multiple representations of mathematical and statistical ideas. These multiple representations may include words, equations, different algebraic notations, graphs, diagrams, models, manipulatives, and computer code.

Mathematics and statistics are connected webs of knowledge where conceptual knowledge links the individual pieces of information. “The development of this conceptual knowledge can only be done so by the construction of relationships between pieces of information” (Hiebert, 1986). “The skills that are at the focal point of conceptual learning in mathematics are the ability to identify and express the same concept in different forms of representation, to choose the most appropriate representation from among the various representations, and to be aware of the advantages and disadvantages of the representations” (İncikabı, 2017).

Using multiple representations broadens and deepens the connections students make between concepts (Abell et al., 2018; Gleason & Hughes Hallett, 1992; Knill, 2009). This will motivate students to go beyond the mastery of basic operations to a deeper understanding of how to use mathematics and statistics, the meaning of the answers, and how to interpret them (NRC, 1989).

**Standard P-5: Teaching with Technology**
Faculty will use appropriate technology to promote deeper student learning and will model the use of technology.

Technology is an integral part of modern mathematics and statistics instruction. Faculty should be purposeful in their selection of technology, considering how it aids learning mathematical, statistical, and data science ideas. Pedagogy will include the use of technology to solve, model, and investigate mathematical and statistical problems and will provide students with opportunities to develop conceptual understanding. Emphasis should be placed on the use of high-quality, flexible, accessible technologies that enhance learning. The use of tools that students are likely to encounter in future work and careers, such as statistical software and web-based apps, is essential.

Standard P-6: Experiencing Mathematics and Statistics

Mathematics faculty

Faculty will provide learning activities, including projects and apprenticeships beyond the scope of the classroom that promote independent thinking and require sustained effort and time so that students will have the confidence to access and use needed mathematics and other technical information independently, to form conjectures from an array of specific examples, and to draw conclusions from general principles challenge students to persistently pursue efforts over an extended time period.

Mathematics faculty will assign. Faculty should seek opportunities to expand student knowledge of how mathematics and statistics are used beyond the scope of the classroom by providing learning activities, including open-ended classroom and laboratory projects, and research opportunities. In addition, they will help their institutions form partnerships with area businesses and industries to develop opportunities for students to have realistic career experiences (Reich, 1993). Such activities will enable students to acquire the confidence to access and use needed technical information, and to independently use mathematics in appropriate and sensible ways. Formative assessment benefits students and faculty by helping them recognize students’ current knowledge and setting goals for future understanding. Formative assessment takes place regularly during a term and is designed to be low-stakes and informative. Any activity that gives students an opportunity to engage with
feedback to improve their understanding is an opportunity for formative assessment. Another goal of formative assessment is to inform teaching practices and strategies to best meet the needs of learners. Good formative assessment produces significant, and often substantial, learning gains (Black & William, 2005).

Formative assessment is most effective when the following principles are applied (Gehrtz, Brantner, & Andrews, 2022; Purcell, 2014; Yale University, 2021).

- Regularly refer to the learning objectives and explicitly connect them to the learning activities.
- Watch and listen to students as they work to understand student thinking before intervening. Ask open-ended questions that provide opportunities for students to further describe and explain their thinking and reasoning.
- Use qualitative oral and written comments that help students recognize what they understand and what they need to do to increase understanding.
- Adapt teaching plans as a result of the formative assessment outcomes.
- Useful and timely feedback is essential for assessments to lead to learning (GAISE, 2016).

Summative assessments are for the purpose of evaluating student learning and assigning grades. It is especially important to ensure that the assessment aligns with the goals and expected outcomes of the instruction. Instructors should use multiple forms of summative assessment such as projects, portfolios, and demonstration of understanding in authentic situations. Instructors should consider the following principles when designing summative assessments (Blonder, et al.; Yale University, 2021).

- Design clearly understood questions that align with learning objectives.
- Provide an opportunity for students to demonstrate their understanding of how the foundational concepts of the course are interrelated and can be applied beyond the course contexts.
- Provide opportunities to close the gap between current and desired performance, such as opportunities for resubmission.
- Consider matters of equity to ensure all students have opportunities to succeed. This may require flexible structure in conducting assessments. Flexible assessments, such as team quizzes, take home assignments, and projects provide more equity and inclusion in math courses.
STANDARDS FOR PEDAGOGY

When planning a lesson, an instructor should start with the question "what should students do?", rather than "what should I do?" AMATYC supports the idea that learning is a social endeavor; therefore, it is important that we humanize the culture of learning mathematics, statistics, and data science (Yeh & Otis, 2019). The most impactful classrooms use learner-centered pedagogies, such as active learning, in a classroom environment that fosters a sense of community (CBMS, 2016; NCTM, 2014). Faculty must create frequent opportunities for students to develop and demonstrate conceptual, contextual, and procedural understanding of topics. This requires pedagogical practices that may include students using concrete tools to model abstract ideas, engaging in mathematical and statistical discourse, connecting different representations of the same idea, using prior knowledge to construct new knowledge, and understanding connections between the mathematics and statistics they are learning and what they already know.

Progress has been made toward the goal of more effectively teaching students to deeply understand mathematics and statistics; however, there is a need for more faculty to consistently identify and use pedagogical strategies that promote equitable student learning. AMATYC’s Standards for Pedagogy that follow recommend the use of instructional strategies that provide for student activity and student-constructed knowledge. Evidence-based strategies which can be incorporated by most teachers without requiring substantial faculty development are highlighted in these standards. Furthermore, the standards are in agreement with the instructional recommendations contained in Common Vision (2015). The standards include active learning, making mathematical connections, multiple representations and approaches, teaching with technology, experiencing mathematics and statistics, and assessment of student learning.

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offers disproportionately greater benefits for individuals from underrepresented
groups by reducing achievement gaps in exam scores and passing rates (Laursen
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collaboration and when students are cognitively engaged with mathematics
(Smith, et al, 2021). Participation in mathematical and statistical discourse, as well
as writing and reading about mathematical and statistical ideas teaches students
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“Working in groups also provided less confident or less able students with
opportunities to explain, question, agree and disagree and test their thinking in a
less threatening context” (Sharma, 2015).

**Standard P-2: Making Mathematical Connections**

Faculty will actively involve students in meaningful mathematics work that
connects to students’ experiences and focuses on broad mathematical and
statistical themes that build connections within branches of mathematics,
and with other disciplines. Students will view mathematics and statistics as
relevant to their lives. Making mathematics and statistics relevant and
meaningful is the collective responsibility of faculty, administrators, and
producers of instructional materials.

Traditionally, there has been a disconnect between classroom mathematics and
real-world mathematics. Mathematics and statistics must not be presented as
isolated sets of rules and procedures, but rather as disciplines that arose out of,
and are connected to, the needs of other fields. Further, students should be
couraged to make explicit connections between mathematical concepts,
including those that may have been traditionally compartmentalized. Topics
learned in one branch of mathematics should be explicitly aligned with topics from
another, e.g. how principles learned in arithmetic can be generalized to principles
in algebra, which can then be connected to topics in geometry.

Students must have the opportunity to observe the interrelatedness between
scientific and statistical, and mathematical investigation, and see first-hand how
mathematics and statistics connect to their lives. Curriculum should include
meaningful mathematics work that allow students to bring their experiences into
the classroom. Authentic applications help students see how mathematics and
statistics are relevant in their lives and in the world around them (Benson-
O’Connor, 2019; GAISE, 2016).
Understanding that mathematics and statistics have relevance to their life and to the world in general improves student motivation to learn and ability to connect ideas. Students who understand the role that mathematics and statistics have played in their cultures and the contributions of their cultures to mathematics and statistics are more likely to persevere in their study of the discipline. Faculty should include aspects of mathematics history and contemporary mathematics that provide counterexamples to the pervasive Eurocentric bias found in modern mathematics. Instructional activities should provide examples of how mathematics and statistics are used in a variety of cultures, and by people of every race, ethnicity, gender identity, class, and other social groups. Additionally, instruction should be culturally relevant, culturally responsive, and culturally sustaining (Alim, 2017).

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Faculty will provide opportunities for students to use, share, and make sense of multiple representations of mathematical and statistical ideas. These multiple representations may include words, equations, different algebraic notations, graphs, diagrams, models, manipulatives, and computer code.

Mathematics and statistics are connected webs of knowledge where conceptual knowledge links the individual pieces of information. “The development of this conceptual knowledge can only be done so by the construction of relationships between pieces of information” (Hiebert, 1986). “The skills that are at the focal point of conceptual learning in mathematics are the ability to identify and express the same concept in different forms of representation, to choose the most appropriate representation from among the various representations, and to be aware of the advantages and disadvantages of the representations” (İncikabı, 2017).
Using multiple representations broadens and deepens the connections students make between concepts (Abell et al., 2018; Gleason & Hughes Hallett, 1992; Knill, 2009). This will motivate students to go beyond the mastery of basic operations to a deeper understanding of how to use mathematics and statistics, the meaning of the answers, and how to interpret them (NRC., 1989).

**Standard P-5: Teaching with Technology**

Faculty will use appropriate technology to promote deeper student learning and will model the use of technology.

Technology is an integral part of modern mathematics and statistics instruction. Faculty should be purposeful in their selection of technology, considering how it aids learning mathematical, statistical, and data science ideas. Pedagogy will include the use of technology to solve, model, and investigate mathematical and statistical problems and will provide students with opportunities to develop conceptual understanding. Emphasis should be placed on the use of high-quality, flexible, accessible technologies that enhance learning. The use of tools that students are likely to encounter in future work and careers, such as statistical software and web-based apps, is essential.

**Standard P-6: Experiencing Mathematics and Statistics**

Faculty will provide learning activities beyond the scope of the classroom that promote independent thinking and challenge students to persistently pursue efforts over an extended time period.

Faculty should seek opportunities to expand student knowledge of how mathematics and statistics are used beyond the scope of the classroom by providing learning activities, including open-ended projects and research opportunities. In addition, they should help their institutions form partnerships with area businesses and industries to develop opportunities for students to have realistic career experiences (Reich, 1993). Such activities will enable students to acquire the confidence to access and use needed technical information, and to independently form conjectures from an array of specific examples, and to draw conclusions from general principles.

**Standard P-7: Assessment of Student Learning**

Faculty will incorporate multiple strategies for formative and summative assessments to inform future pedagogical practices and to help students recognize their current understanding.

Formative and summative assessments are complementary tools for assessing the progression of student learning and informing instruction. Formative assessment benefits students and faculty by helping them recognize students’ current knowledge and setting goals for future understanding. Formative
assessment takes place regularly during a term and is designed to be low-stakes and informative. Any activity that gives students an opportunity to engage with feedback to improve their understanding is an opportunity for formative assessment. Another goal of formative assessment is to inform teaching practices and strategies to best meet the needs of learners. Good formative assessment produces significant, and often substantial, learning gains (Black & William, 2005).

Formative assessment is most effective when the following principles are applied (Gehrtz, Brantner, & Andrews, 2022; Purcell, 2014; Yale University, 2021).

- Regularly refer to the learning objectives and explicitly connect them to the learning activities.
- Watch and listen to students as they work to understand student thinking before intervening. Ask open-ended questions that provide opportunities for students to further describe and explain their thinking and reasoning.
- Use qualitative oral and written comments that help students recognize what they understand and what they need to do to increase understanding.
- Adapt teaching plans as a result of the formative assessment outcomes.
- Useful and timely feedback is essential for assessments to lead to learning (GAISE, 2016)

Summative assessments are for the purpose of evaluating student learning and assigning grades. It is especially important to ensure that the assessment aligns with the goals and expected outcomes of the instruction. Instructors should use multiple forms of summative assessment such as projects, portfolios, and demonstration of understanding in authentic situations. Instructors should consider the following principles when designing summative assessments (Blonder, et al.; Yale University, 2021).

- Design clearly understood questions that align with learning objectives.
- Provide an opportunity for students to demonstrate their understanding of how the foundational concepts of the course are interrelated and can be applied beyond the course contexts.
- Provide opportunities to close the gap between current and desired performance, such as opportunities for resubmission.
- Consider matters of equity to ensure all students have opportunities to succeed. This may require flexible structure in conducting assessments. Flexible assessments, such as team quizzes, take home assignments, and projects provide more equity and inclusion in math courses.