

## **Pattern of Administration and Governance** **Updated: July 31, 2014**

### **I. Preamble**

The mission of the MBI is:

- To foster innovation in the application of mathematical, statistical, and computational methods in the resolution of significant problems in the biosciences;
- To foster the development of new areas in the mathematical sciences motivated by important questions in the biosciences;
- To engage mathematical and biological scientists in these pursuits; and
- To expand the community of scholars in mathematical biosciences through education, training, and support of students and researchers.

To support this mission, MBI programs are designed to reinforce and build upon existing research efforts in the mathematical biosciences, and to inspire and accelerate the expansion of the community and its intellectual growth. These include emphasis year programs, current topic workshops, education programs, and research projects. The administrative and governance structure of the MBI are designed to support the mission of the Institute.

The Director of the MBI shall periodically review the structures set forth in this document; any revisions shall be presented to the Board of Trustees (BOT) and the Divisional Dean of the Division of Natural and Mathematical Sciences in the College of Arts and Sciences at The Ohio State University (OSU) for approval and adoption. A diagram illustrating the MBI standing committees and their reporting and advising functions is given at the end of this document.

### **II. Administration**

#### **II-A. Directors**

There shall be a Director of the MBI who will be the scientific and administrative leader of the Institute. There shall be a Senior Associate Director and/or a Senior Scientific Advisor, several Associate Directors, and an Assistant Director who will all report to the Director. The Director will report annually to the BOT and the Dean of BMPS on all matters of the Institute's performance and its plans to achieve its mission. The Board will evaluate how well the Institute is performing its mission and how well it is utilizing NSF funds, whereas the Dean will evaluate the performance of the Director (with input from the BOT) and how well the Institute is utilizing OSU funds.

The Director shall be a person recognized internationally in the field of mathematical biology and shall have primary scientific and management responsibilities for the MBI. This is a full time position and typically the Director shall be a tenured faculty member of The Ohio State University. The Director shall coordinate programs of research, community building, and education designed to support the mission of the Institute. In doing so, he/she shall consult broadly and actively with the mathematical, scientific, educational, and industrial communities at the local, national, and international levels. The Director shall ensure efficient

day-to-day operations of the Institute and effective use and management of the Institute's resources. The Director shall provide the SAC and the BOT with all relevant information prior to their respective meetings. Administratively, the Director reports to the Divisional Dean of the Division of Natural and Mathematical Sciences.

The Senior Associate Director and the Senior Scientific Advisor shall be recognized internationally in the field of mathematical biology. The Senior Associate Director is a full-time faculty member (tenured or visiting) of The Ohio State University. The Senior Scientific Advisor is a person employed by another university or organization and has a part-time association with MBI. Their duties include designing and implementing new programs that promote the mission of the Institute. The Senior Associate Director or the Senior Scientific Advisor will represent the Institute in the Director's absence.

The Associate Directors typically shall be faculty members of The Ohio State University chosen from the biological, medical, mathematical, statistical, and computational sciences. These are part time positions with duties that include providing scientific, educational, and technical support to the Director and Senior Associate Director across a broad range of issues appropriate to the mission of the MBI. They shall provide information on trends, concepts, and fundamentals of various bioscience disciplines, assist in forging links with researchers in the biosciences, help in the selection and mentoring of Postdoctoral Fellows, and in other ways that help the Director in discharging his/her responsibilities.

The Assistant Director shall be a highly qualified person in a discipline appropriate to the mission of the MBI. This is a full time position with duties that include day-to-day operations of the MBI and supervision of Institute staff. The MBI shall maintain an efficient and effective staff that performs daily tasks including those related to human resources, accounting, data acquisition and management, communications, office space, supplies, and computer support.

#### **II-B. Terms, Evaluation, and Succession of the Directors**

The Director shall serve a term of five years, subject to acceptable performance as determined during annual review. The Senior Associate Director, the Senior Scientific Advisor, and the Associate Directors shall each serve a term of three years, subject to acceptable performance as determined during annual review. The Directors and Advisor may serve multiple terms.

The Divisional Dean of the Division of Natural and Mathematical Sciences shall evaluate the performance of the Director annually with input from the Board of Trustees, who shall have reviewed the Director's performance over the past year. The Director will evaluate the performances of the Senior Associate Director, the Senior Scientific Advisor, the Associate Directors, and the Assistant Director annually. In consultation with the Assistant Director, the Director shall annually evaluate the performance of each member of the MBI office staff.

Two years prior to the end of the term of the Director, the Director shall notify the Board of Trustees whether he/she seeks reappointment or intends to step down. In the first case, the Board of Trustees shall review the performance of the Director

and, in consultation with the NSF, shall recommend to the Divisional Dean of the Division of Natural and Mathematical Sciences whether to reappoint or not reappoint the Director to another term. If the Dean decides not to reappoint the Director, or if the Director intends to step down, then the Dean shall form a search committee. The committee shall include members of the Mathematics and Statistics Departments at OSU, the Board of Trustees, the Scientific Advisory Committee, and representatives from NSF and the bioscience community. The Search Committee shall interview candidates and send a short list to the Dean. The Dean shall decide to whom an offer will be made.

When the positions of Senior Associate Director, Senior Scientific Advisor, and Assistant Director are to be filled, the Director will consult with and gain the approval of the Board of Trustees and appropriate departments at The Ohio State University to identify and recruit suitable candidates. The Director will also consult with the Selection Committee (see VIII-B) when filling the post of Senior Scientific Advisor. From these candidates, the Director shall appoint the Senior Associate Director, the Senior Scientific Advisor, or the Assistant Director.

The Director appoints Associate Directors, in consultation with the Senior Associate Director, the Senior Scientific Advisor, and the Divisional Dean of the Division of Natural and Mathematical Sciences.

Should the Director become incapacitated, as determined by the Board of Trustees in consultation with the Divisional Dean of the Division of Natural and Mathematical Sciences, the Senior Associate Director will become Acting Director. Should there be no Senior Associate Director, the Board will identify one of the Associate Directors to become Acting Director.

### **III. Board of Trustees**

The MBI shall have a Board of Trustees (BOT). The Board shall consist of individuals with leadership experience in the public and private sectors and of recognized scientists in fields related to MBI activities. The duties of the BOT will be to evaluate the Institute's ongoing financial and scientific plans, evaluate the performance of the Institute with respect to its mission, review the performance of the Director and advise the Divisional Dean of the Division of Natural and Mathematical Sciences on the review, advise the Director about opportunities and strategic priorities for MBI, advise the Director on the ways and means to ensure the long-term success of MBI, and provide advice on fund raising.

#### **III-A. Annual Meeting and Teleconferences**

The Board will meet annually. Prior to the annual meeting the Director shall provide the Board with an annual report on the scientific and outreach programs of the Institute. At the annual meeting, the BOT will evaluate the Institute's financial and scientific plans and its performance with respect to its mission. In its executive session, the BOT will report on both the state of MBI and the Director's performance to the Divisional Dean of the Division of Natural and Mathematical Sciences.

The Board may hold additional meetings or teleconferences as often as deemed necessary.

### **III-B. Members of the Board**

Board members shall be selected by the current members from among those recommended by the Selection Committee and shall serve a three-year term. The BOT may reappoint members for a second term. The BOT shall include representatives from the Scientific Advisory Committee and the Institute Partners.

### **III-C. Chair of the Board**

The Board shall elect a Chair, who shall serve a two-year term, from among its members. The Chair shall preside over all Board meetings and, in consultation with the Director, shall set the meeting agenda. He/She shall insure that BOT recommendations are reported to the Director and to the Divisional Dean of the Division of Natural and Mathematical Sciences. The Chair shall serve as a representative of the Board to meetings to which the Director shall deem a Board representative to be useful.

## **IV. The Scientific Advisory Committee**

There shall be a Scientific Advisory Committee (SAC) that will advise the directors by discussing the scientific programs of MBI. In addition, SAC shall select new Emphasis Year programs and Current Topic Workshops. SAC will consist of approximately fifteen internationally recognized mathematical scientists and bioscientists from academia, government, and industry.

### **IV-A. Annual Meeting**

The Scientific Advisory Committee shall meet annually. In advance of the meeting, the Director shall provide the SAC with an annual report on the previous years emphasis year program, a report on the current year's emphasis year program, and progress reports on the development of future emphasis year programs. The Director shall provide such reports early enough so that the SAC will have time to respond with requests for additional information, if desired. The SAC shall hold additional meetings or teleconferences as frequently as the Director and the SAC deem appropriate.

### **IV-B. Election of SAC Members**

Each year the Director shall appoint approximately five new SAC members from among those recommended by the Selection Committee (see VIII-B). Each new member shall serve a nonrenewable three-year term.

Guiding principles for the choice of SAC members include:

- SAC members shall be leaders in the mathematical sciences and biosciences and shall be expected to provide breadth and coverage across the entire scientific spectrum of the mathematical biosciences.
- Some new members shall be leading researchers in the area of upcoming emphasis years, so that they can provide direct help in the development of the program.
- Achieving and maintaining diversity with respect to gender and ethnicity, as well as appropriate balance between academic versus nonacademic backgrounds shall be considered in the selection of new SAC members.

### **IV-C. Chair of the Scientific Advisory Committee**

The SAC shall elect a Chair from among its members who have served at least one

year. The Chair shall serve a two-year term; if the Chair was elected during his/her second year on the SAC, then he/she shall remain on the SAC for a total of four years.

The Chair shall moderate all meetings of the SAC and share responsibility with the Director for the distribution of an agenda and appropriate documents prior to the annual meeting. He/she shall provide formal reports on any SAC actions or recommendations to the Director of the MBI and the Board of Trustees. The Chair shall represent the SAC at meetings with sponsors or university officials, at which a SAC presence shall be deemed useful by the Director or the Board of Trustees, or at which a SAC representative shall be requested by the sponsor.

## **V. Emphasis Year Programs**

The Director shall consult widely in the mathematical bioscience community for appropriate subjects for emphasis years. The Director shall encourage the wider mathematical and scientific communities to submit ideas for programs.

### **V-A. Timeline and Guidelines for Emphasis Years**

The Director and SAC typically shall give final approval for emphasis year programs two years in advance. Guidelines for selecting emphasis years include: the importance and timeliness of the theme; the balance among mathematical, theoretical, and experimental communities; the potential for mathematical sciences to have an impact on the biological and medical sciences and for the biological and medical sciences to have impact on the mathematical sciences; and the revisiting of themes from previous emphasis years.

Prior to the SAC annual meeting, the Director and members of SAC shall review current proposals from the relevant organizing committees and shall be prepared to propose themes for new emphasis years. When SAC proposes a new theme, it charges the Director to form the Organizing Committee for the Emphasis Year and provides a list of names of possible members for that Organizing Committee. Approximately six months after the SAC meeting, the Director will call a meeting of the Organizing Committee. The purpose of this meeting is to make a detailed draft of the Emphasis Year program.

After the Organizing Committee meeting, the SAC and the External Scientific Advisory Committee for the Emphasis Year will review and provide feedback on the proposal. The proposal shall be revised and submitted to SAC for final approval at its next meeting.

### **V-B. Emphasis Year Committees**

The MBI shall have committees charged with providing advice to the Directors on the emphasis year programs. There shall be an Emphasis Year Organizing Committee, External Scientific Advisory Committee for the Emphasis Year, and Workshop Organizing Committees. In forming these committees, the Director shall seek input from a wide variety of sources and shall balance committee membership to achieve breadth and depth of expertise in mathematics and science, diversity with respect to gender and other underrepresented groups, and achieve appropriate balance between academic and industrial backgrounds of committee members. The Director shall provide guidance to all committees.

*Emphasis Year Organizing Committee:* After seeking advice from the Scientific Advisory Committee, the Director shall assemble researchers who will function as the Emphasis Year Organizing Committee (EYOC). This Committee shall be large enough to comprise all needed expertise, but small enough to function effectively. The Director shall charge the Committee with drafting an emphasis year proposal for consideration, revision, and adoption by the Scientific Advisory Committee. The Committee shall meet with the Directors of the MBI to develop this proposal. The proposal should contain a rationale for the emphasis year and its various themes, a list and description of workshops and tutorials, a list of potential speakers, and suggestions for long and short-term visitors. In addition, the Committee shall nominate experts for membership in the External Scientific Advisory Committee for the Emphasis Year. At the conclusion of an emphasis year, the Organizing Committee shall write a final report.

*External Scientific Advisory Committee for the Emphasis Year:* In consultation with the Emphasis Year Organizing Committee and the Scientific Advisory Committee, the Director shall designate a group of experts to function as the External Scientific Advisory Committee for the Emphasis Year (ESAC). This Committee shall be charged with providing advice to the Emphasis Year Organizing Committee as it formulates the emphasis year proposal. Typically, the ESAC will be consulted electronically. The Director shall send the emphasis year proposal to the ESAC members and ask for their input, especially with respect to scientific content and impact of the proposal. The Director shall communicate the ESAC suggestions to the Organizing Committee so that it may revise the proposal accordingly.

*Workshop Organizing Committees:* Members of the Emphasis Year Organizing Committee shall be the primary organizers of emphasis year workshops. Typically, the EYOC will add additional workshop co-organizers to broaden the scope of the workshops. The Director will give written guidelines to each workshop organizer regarding MBI policies on diversity, scheduling, and numbers of participants; tutorials; logistical arrangements; and reimbursement procedures.

## **VI. Research Personnel**

### **VI-A. MBI Postdoctoral Fellows Program**

The Directors of the MBI will identify, recruit, and help train MBI Postdoctoral Fellows. MBI postdoctoral positions will be advertised widely so that top candidates will be attracted to apply. Candidates will typically have earned a PhD in the mathematical or biological sciences and will have backgrounds indicating a strong interest and research potential in mathematical bioscience.

Appointments of MBI Postdoctoral Fellows can be renewed annually up to a maximum of three years. The three-year term provides Fellows with the opportunity to engage leaders in their field, broaden their experience, and deepen their knowledge, while providing the time needed to establish themselves as independent researchers.

The Directors, in consultation with each Postdoctoral Fellow, shall appoint initial mentors, one from the mathematical sciences and one from the biological sciences. Postdoctoral Fellows shall provide annual progress reports to the Directors. The

Directors shall monitor the progress of each Postdoctoral Fellow and provide him/her with constructive feedback and advice. MBI shall provide Postdoctoral Fellows with opportunities for teaching and professional development.

The Assistant Director shall maintain a Post-doc Handbook that provides written advice and guidance to new Postdoctoral Fellows.

#### **VI-B. Long-Term Visitors**

Long-term visitors (LTV) are researchers invited to be in residence for one or more months. The organizers of current and recent emphasis years may suggest LTV. The MBI shall also solicit applications for LTV who will participate in the research efforts of the Institute.

#### **VI-C. OSU Faculty Associates**

The MBI course release program enables recipient OSU faculty to participate in MBI programs. Examples of participation include attending MBI events, interacting with MBI post-docs and visitors, giving seminar talks, and helping to invite seminar speakers (with MBI funding).

### **VII. Additional Programs**

#### **VII-A. Current Topics Workshops**

In addition to workshops associated with the annual emphasis years, the MBI shall run Current Topics Workshops that are developed on a relatively short timescale. These Workshops will highlight rapidly emerging specialized areas with potential high impact. Some workshops shall be devoted to mathematical modeling in an emerging area of bioscience and some to an emerging area in the mathematical sciences motivated by biology. The Directors will work with the MBI advisory committees and the mathematical biosciences community to identify topics for these workshops.

#### **VII-B. Institute Partners Program**

Institute Partners (IP) are organizations whose participation is designed to increase involvement of their members in mathematical biology and to nurture a national community of mathematical bioscience scholars. There shall be an annual meeting of the Institute Partners to learn about and discuss the MBI's scientific and educational programs, as well as ongoing programs at other Institute Partners, solicit suggestions and input for Current Topics Workshops, and solicit suggestions for nominations to SAC. The meeting will be a forum to discuss common interests and concerns of IP institutions and plans for joint collaborative efforts with MBI support.

#### **VII-C. Education Programs**

The Directors shall arrange educational programs for graduate and undergraduate students. The Directors shall also arrange tutorials for emphasis year workshops and other programs such as industrial problems-type workshops or mathematical programs for bioscientists, as appropriate.

## **VIII. Additional Committees**

### **VIII-A. Local Scientific Advisory Committee**

The Local Scientific Advisory Committee (LSAC) shall consist of up to 30 persons chosen by the Director primarily from faculty of The Ohio State University in the biological, mathematical and physical sciences; medicine; and engineering. The Committee will help identify Current Topics Workshops, future emphasis year programs, areas for curriculum development, organizers of workshops and emphasis year programs, and mentors for MBI Postdoctoral Fellows. The Committee shall meet at least once each quarter with the Directors of the MBI.

### **VIII-B. MBI Selection Committee**

There shall be a Selection Committee who will recommend new members for the Board of Trustees, the Scientific Advisory Committee, and the Diversity Committee. The Board of Trustees, the Scientific Advisory Committee, and the Institute Partners shall appoint two Selection Committee members each and the Diversity Committee will appoint one committee member. Committee members will serve two-year nonrenewable terms. The Director will serve *ex officio*.

Achieving and maintaining diversity with respect to gender and ethnicity, as well as appropriate balance between academic versus nonacademic backgrounds, shall be considered in the selection of all MBI committee members.

To ensure connections to the wider mathematical biosciences community, the Selection Committee will solicit nominations for MBI committees from representatives of the Institute Partners, senior officers of major mathematical bioscience societies, and editors of bioscience journals, among others. The Director shall also solicit nominations of candidates for the MBI standing committees from members of the MBI standing committees and shall distribute these names to the Selection Committee.

### **VIII-C. Diversity Committee**

Diversity of organizers, speakers, and participants is an important component of workshop and program organization. The Director shall appoint members of the Diversity Committee from among those recommended by the Selection Committee. The Diversity Committee will consist of approximately six individuals with three-year terms each who are sensitive to and have experience dealing with diversity issues. Each committee member may be reappointed once. This Committee will include *ex officio* the Director and an Associate Director. The Diversity Committee shall advise the Director on how to achieve diversity in gender, geography, and underrepresented groups in MBI's scientific programs and will help evaluate the Institute's performance on diversity.

## **IX. Evaluation and Assessment**

MBI shall establish and maintain data collection and management procedures in order to provide the basis for evaluation of its scientific and education programs. These data will include visitor statistics; data on MBI Postdoctoral Fellows; participant surveys; workshop organizers' summary reports; and annual reports from Emphasis Year Organizing Committees. On a regular basis, the Director shall evaluate and assess the scientific and educational programs of the Institute in order to determine the extent to which the

programs advance the mission of the Institute and to provide feedback to the BOT, SAC, and the sponsoring agencies and institutions.

**X. Dissemination and Public Outreach**

MBI shall disseminate results and achievements of Institute programs. This shall include materials assembled from workshops, materials that emerge from the summer education programs, and videos of talks and presentations. Annual reports and newsletters shall be distributed to funding agencies and Institute Partners.

The MBI shall publish a newsletter several times a year to inform the mathematical biosciences community of future programs and activities.

The MBI shall organize Public Lectures.