

# **Report of the Ad Hoc Committee on Faculty/CS Governance**

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## **Summary**

In March 2002, the Committee recommended a series of By-Law changes to adjust representation and streamline operations of Math Faculty committees. This report concludes that process, by proposing a framework for a representative version of Math Faculty Council, created through By-Laws rather than constitutional amendment. Council will meet as an assembly of the whole twice a year; monthly business will be handled by a new Representative Council, on which elected representation from a Department or School will be proportional to the square root of faculty complement. The arrangement will be revisited by an independent review committee within two years. We also recommend a parallel effort to change the amending formula of the Constitution.

## **The Difficulty of Constitutional Change**

The Math Faculty Constitution has not been amended since it was adopted in 1982, despite attempts. While the bar for constitutional amendment should be set relatively high to discourage casual tampering, two factors combine to make it almost impossible in this case. The specified membership of Math Faculty Council, which takes up a whole page of the two-page Constitution, includes a number of people who are not directly concerned with day-to-day issues in the Faculty: the President, Provost, Dean of Graduate Studies, Registrar, Librarian, ten faculty members from other Faculties, and all professors visiting for a year or longer. These people are unlikely to exercise their votes. A proposed amendment requires two-thirds of all members to cast a mail ballot in favour; abstentions, whether deliberate or due to professors on sabbatical not receiving their ballot in time, count as “no” votes. Thus both a very high turnout and a very high plurality are required.

Despite this poor design, the Constitution is so brief that it does allow considerable flexibility in arrangements. It specifies the powers and duties of Math Faculty Council, but says nothing about operating procedures, and it permits all those powers to be delegated to standing or ad hoc committees. We propose using this flexibility to change the way things are currently done, by having Math Faculty Council delegate its powers to a new committee set up by amending the By-Laws. Quite apart from making change possible, this has the advantage of also making it easier to undo the change, should it prove to be ineffective.

## The Case for a Representative Council

Compelling arguments for representative democracy are made in every political science textbook, and in classic essays such as John Stuart Mill's "On Representative Government". This model is used throughout the world at all levels of government. It is also the model used by the Faculties of Science and Engineering here at UW. The Math Faculty has grown and diversified to an extent that transacting all business in a committee of the whole has become less effective. In addition, due to a host of reasons, there is very little participation from Computer Science, the largest unit in the Faculty.

Electing members to a Representative Council would charge those members with the responsibility of ensuring attendance and studying matters under consideration carefully. In a smaller body, the types of compromises necessary for progress are more likely to be arrived at in timely fashion.

The Science and Engineering Faculties elect one representative for every five faculty members. This simple proportional formula works because those faculties do not have great imbalances in the size of departments. We propose a formula that has aesthetic appeal to a Faculty of Mathematics, as well as considerable theoretical and practical benefit: that the number of representatives from a unit be equal to the square root of its faculty complement, rounded to the nearest integer.

Department	Estimated Number of Reps
PMath	4
AMath	4
C&O	5
Stats/Actsci	6
CS	8
total elected	27

The theoretical justification for this was first set out by Lionel Penrose in his 1946 paper "The elementary statistics of majority voting", and proposed as a formula for representation at the UN General Assembly. Many subsequent works in the area of social choice and voting power have reinforced the idea; it provides justification for the ad hoc weighting scheme of the EU Council of Ministers. The intuition behind the formula is that under the natural probabilistic model for voting on a binary choice, the size of the majority within a constituency is proportional to the square root of the number of voters. Hence the indirect voting power of a constituent in a two-tier system is equalized by the formula. We have provided references at the end of this document for those whose curiosity is piqued.

In practical terms, this formula allows for increased representation from Computer Science without having them dominate Representative Council. Computer Science does not want to run the Math Faculty, a sentiment heartily shared by the rest of the Faculty. The numbers mean that the danger of diffused responsibility for attendance and study of issues is reduced.

Representative Council will also include other members: the Chair of Council, the Dean (who is a member of all committees), the Associate Deans for Graduate and Undergraduate Affairs, an appointed representative of the faculty in the Dean's Office, one graduate and one undergraduate representative, and (as non-voting members) the Secretary of Council and one representative from each of the other Faculties.

## **The Relationship of Council and Representative Council**

Council will delegate its powers to Representative Council. Council will normally meet twice a year, in September and March, essentially as a check that Representative Council is doing its business effectively. In exceptional circumstances, issues of particular importance may be brought before Council. New members will be introduced in September, and elections for committees will be held in March. Representative Council will normally meet monthly and will handle the business currently handled by Council. Absent members may send alternates; departments may wish to consider electing alternates along with a slate of representatives. The agenda for each meeting will be managed by the new Agenda Committee, similar in function to the current Executive Committee. We have specified formulas for amendment of the By-Laws and Constitution (which can be proposed by Representative Council or by petition), and for calling special meetings. Council will have the power to dissolve Representative Council and call new elections.

## **Timetable for Implementation and Review**

We suggest allowing the summer of 2002 for consideration of our proposals, allowing time for feedback and fine-tuning by the committee. We will present a polished proposal before the September 2002 meeting of Math Faculty Council, at which a vote on the necessary changes to the By-Laws will be held. If these changes are passed, elections for representatives can be held within constituencies in time for an October meeting of Representative Council. In March 2004, an independent review committee should be struck to consult constituents on their view of the effectiveness of these procedures. This committee can report in July 2004, and their recommendations can be considered at the September 2004 meeting of Council.

## **Changing the Amending Formula of the Constitution**

While the changes we propose can be implemented indefinitely under the By-Laws, this is not the cleanest solution, and the embarrassment of having an unamendable Constitution remains. We suggest a parallel effort to amend the Constitution to limit membership and change the amending formula to a more reasonable one (two-thirds vote at a Council meeting, with advance notice of motion). This has the advantage that, should the committee reviewing the By-Law changes decide that they should be enshrined in the Constitution, this avenue will be open.

## **References**

Lionel Penrose, "The elementary statistics of majority voting", J. Royal Statistical Society 109:53-57, 1946

\_\_\_\_\_, Objective Study of Crowd Behaviour, H.K. Lewis & Co. Ltd, London, 1952.

John Banzhaf, "Weighted voting doesn't work: a mathematical analysis", Rutgers Law Review 19:317-343, 1965.

\_\_\_\_\_, "Multi-member electoral districts – do they violate the 'one man, one vote' principle?", Yale Law Journal 75:1309-1338, 1966.

\_\_\_\_\_, "One man, 3.312 votes: a mathematical analysis of the Electoral College", Villanova Law Review 13:304-332, 1968.

Dan Felsenthal and Moshe Machover, The Measurement of Voting Power: Theory and Practice, Problems and Paradoxes, Edward Elgar Publishing Ltd., Cheltenham, 1998.

## **Appendix A: Current Constitution and By-Laws**

The Math Faculty Constitution and By-Laws as of the beginning of January 2002 can be found on the Web at <http://www.cs.uwaterloo.ca/admin/gov/index.html>.

## **Appendix B: Proposed By-Laws**

**THE UNIVERSITY OF WATERLOO  
MATHEMATICS FACULTY COUNCIL  
(Hereinafter called "The Council")  
BY-LAWS  
(proposed amendments Apr 2002)**

### **I. MEETINGS**

The Council will meet at least twice a year, in September and in March, to receive reports from Representative Council, to ratify its actions, and to consider possible amendments to these by-laws. Special meetings of Council may be called by Representative Council, or by a petition signed by 15% of the membership of Council.

The tenure of standing committees of the Faculty will be from September 1 to August 31. At the March meeting the slate of nominations concerning the standing committees and other appointments shall be presented to Council and elections held.

The agenda for Council Meetings will be drafted by the Agenda Committee. Any member of Council may, by notice in writing to the Chair of the Agenda Committee not less than 8 days before a regular meeting, request that any item be placed on the agenda.

The quorum for all meetings, regular and special, shall be not fewer than 25 members.

Except in cases of extreme emergency, no motion of major policy significance may be debated or voted upon in any meeting unless prior notice of that motion is included in the agenda of that meeting. In cases of dispute, the Chair's ruling on whether or not a motion shall be admitted shall be final. Normally, reference to committees, questions of procedure, tabling and requests for information are among the matters not requiring notice of motion.

Representative Council may be dissolved and new elections ordered by a two-thirds vote of those present at a Council meeting, provided that a quorum of 30% of the membership is present.

### **II. AMENDMENT**

Amendments to the By-Laws shall be proposed by a two-thirds vote of those present at a regular Representative Council meeting, or by a petition signed by 40% of the membership of Council. Any proposed amendments must appear on the agenda made available for the meeting of Representative Council if proposed there, and on the agenda circulated for the meeting of Council. Amendments shall be adopted by a two-thirds vote of those present at the Council meeting.

### **III. MINUTES**

The Secretary of the Council will maintain a complete file of the minutes of the Council and of its various committees, with the exception of the Promotion and Tenure Committee. These files shall be open to inspection by any member of the Council upon request. The Secretary will distribute copies of the minutes of Council meetings to all Council members, and make these available

electronically. The Secretary will also maintain a continually updated copy of the complete Constitution and By-Laws, and make this available electronically.

#### **IV. APPROVAL OF CANDIDATES FOR DEGREES AT CONVOCATION**

The Dean, on the recommendation of the Standings and Promotions Committee and the Graduate Studies Committee, has the authority to submit the names of candidates meeting all requirements for all the degrees offered by the Faculty to the University Senate for approval.

#### **V. COMMITTEES**

NOTE: The Dean is a member of all committees, but is listed only when serving as Chair.

##### **(a) Representative Council:**

- Membership:
- the Chair of Council, who shall chair Representative Council;
  - the Secretary of the Council (non-voting);
  - the Associate Dean, Undergraduate Studies;
  - the Associate Dean, Graduate Studies;
  - the Chairs of each Department and the Director of each School;
  - faculty members from each Department and School, of a number (including the Chair or Director) equal to the square root rounded to the nearest integer of the faculty complement of that Department or School as of the beginning of the month in which elections are held, elected for a term of one year by the Department or School in a manner approved by the Department or School;
  - one full-time undergraduate student, elected by the full-time undergraduates in the Faculty of Mathematics through a procedure authorized by the Dean;
  - one full-time graduate student, elected by the graduate students in the Faculty of Mathematics through a procedure authorized by the Dean;
  - one representative of the faculty members in the Dean's Office, appointed by the Dean;
  - one representative (nonvoting) from each of the other Faculty Councils.

##### Duties and powers:

Representative Council is the normal operating unit of the Faculty of Mathematics. It shall have all the powers of Council, delegated to it by Council. Council shall meet only to consider items of a broad nature as determined by Representative Council.

Representative Council will hold regular monthly meetings if there is sufficient business. The agenda will be determined by the Agenda Committee. These meetings will be open to all members of Council. Notice of regular meetings, including a copy of the agenda, shall be made available electronically (with a paper copy sent to each Department and School office) no less than 6 days before the meetings. Quorum shall be 50% of voting membership. Members who are unable to be

present may send an alternate, provided that 24 hours' notice is given to the Chair of Council. Special meetings of Representative Council can be called by the Agenda Committee, provided that 48 hours' notice is given, and only the business specified in the notice of the meeting is transacted.

**(b) Agenda Committee:**

Membership:       the Chair of Council, who shall be Chair;

                          the Secretary of the Council;

                          the Associate Dean, Undergraduate Studies;

                          the Associate Dean, Graduate Studies and Research;

                          one member of Representative Council from each Department and School,  
                          chosen by the Department or School;

                          the undergraduate and graduate representatives on Representative Council.

Duties and Powers:

1.       Drawing up the Agenda for Representative Council and Council meetings.
2.       Appointing *ad hoc* Council Committees and receiving reports from committees of the Council.
3.       Assigning matters to appropriate committees and handling material that does not fall within the purview of other committees.
4.       Serving as a Nominating Committee for the standing committees, for Faculty representatives to other bodies, and for any other committees to which the Faculty may from time to time elect representatives.
5.       Appointing members to the above committees or bodies as required to fill vacancies which occur between elections.
6.       Monitoring all motions submitted to Representative Council and Council via the Agenda in order to ensure that such motions are accompanied by adequate statements outlining the reasons for the motion, and its expected consequences.

## **Appendix C: Proposed Amendments to the Constitution**

### **THE UNIVERSITY OF WATERLOO CONSTITUTION FOR THE MATHEMATICS FACULTY COUNCIL (Hereinafter called "The Council")**

**(proposed amendments, April 2002)**

#### **CONSTITUTION**

##### **1. MEMBERSHIP**

The President of the University.

The Vice-President, Academic and Provost.

The Dean of the Faculty.

All Professors, Associate Professors, Assistant Professors and full-time Lecturers in the Faculty.

One representative from each of the other Faculty Councils, who shall be a faculty member.

The Dean of Graduate Studies.

The Registrar, or his/her delegate.

The Program Administrator (Mathematics) of the Department of Co-operative Education & Career Services.

The University Librarian or his/her delegate.

One full-time Mathematics graduate student, chosen by the graduate students of the Faculty, and two full-time Mathematics undergraduate students chosen by the full-time undergraduate students in the Faculty.

The Chair of the Council shall be elected by the Council for a three-year term.

The Secretary, who shall be appointed by the Dean, need not be chosen from the members of the Council. If not a member of the Council prior to the appointment, the Secretary shall become a (non-voting) member of the Council on appointment.

## II. POWERS AND DUTIES

The powers and duties of the Mathematics Faculty Council shall be:

- (a) To make rules and regulations for governing its proceedings.
- (b) Subject to the approval of the Senate, to determine the courses of study in the Faculty and the conditions of admission into, and continuation within, these courses of study.
- (c) Subject to confirmation by Senate, to appoint the examiners for, and conduct the examinations of, the courses in the Faculty and determine the results of such examinations.
- (d) To recommend to the Senate candidates for the conferring of degrees, diplomas, awards and other honours.
- (e) To appoint such standing and *ad hoc* committees as it shall from time to time determine, and to delegate to such committees any powers and responsibilities which Council itself possesses.
- (f) To consider and report to the Senate upon such matters affecting the Faculty as may seem appropriate to the Council.

## III. ADOPTION AND AMENDMENT

Amendments to the Constitution shall be made by a two-thirds majority vote of members present (in person or by proxy) at a meeting of the Council. Each member present in person may hold up to one proxy of a member who is absent, provided that notice in writing be given by the absent member to the Chair of Council at least twenty-four hours in advance. Such amendments shall require approval by the Senate. Notice of motion for any resolution to amend the constitution must be given at least four weeks prior to any vote on the resolution.

## IV. PROCEDURE

In all matters of procedure Council shall, unless it shall otherwise have determined in advance, be guided by *Robert's Rules of Order Newly Revised*.

**V. OTHER MATTERS**

In any matter not covered by this Constitution and By-Laws, Council shall determine its own procedure by a simple majority of those present and voting.