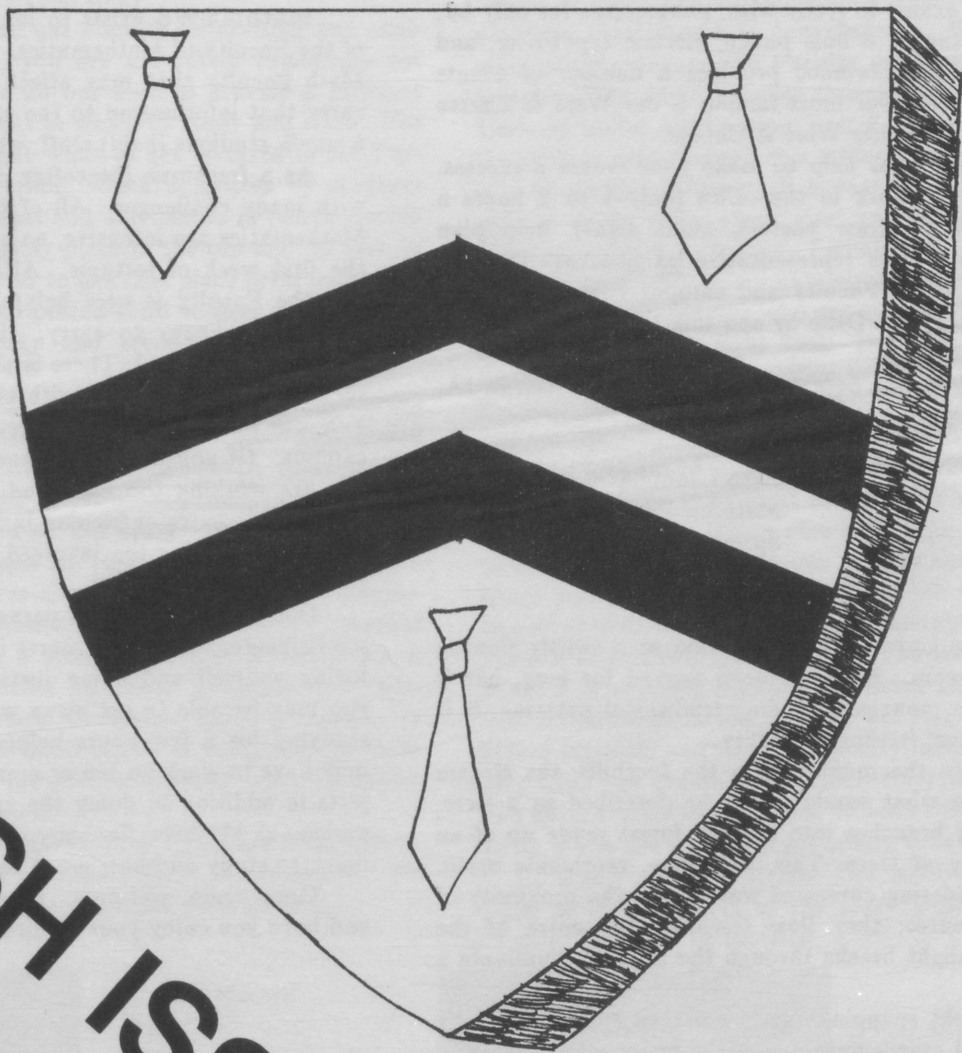


# math NEWS



**FROSH ISSUE 1984**  
Volume 36 Number 0

## From the Desk of the President

Welcome to Waterloo Math. We are the largest faculty on campus with the fastest growing society. Getting your Bachelors of Mathematics is going to take some hard work but don't forget to take time to relax and have a Good Time! Even your professors will tell you to take a break once in a while.

Your University years are some of the best years of your life. The Math Society (known as MathSoc) is here to help you make the next 4 or 5 years the best. To help academically we can give you old exams to study with, photocopies for only 5¢, a user friendly stapler, 3 hole punch, electric typewriter, and free advice. Socially, MathSoc provides a number of events throughout the term. Our most famous is our Wine & Cheese which is not like any other Wine & Cheese.

MathSoc needs your help to make your events a success. We need people to: work in the office (only 1 or 2 hours a week), do publicity (draw posters, paint signs), help plan events, or be your class representative on Students Council. There are many other Faculty and campus committees that we need people to sit on. Drop by and talk to us!!

Due to co-op, I won't be here until January. Good luck in 1A. See you in January!

Barb Lundhild  
MathSoc President  
Spring 1984

Think of the University of Waterloo as a swiftly flowing mountain-fed stream. It hasn't been around for long, but it courses down the mountain, eroding traditional patterns. It is a symbol of change, freshness, vitality.

Further down the mountain, in the foothills, the stream has widened into what would better be described as a river. Part of the river branches into a small forest made up of an unnatural variety of trees. This, of course, represents math. The gentle meandering curves of water belie the proximity of the torrential source; they flow towards the centre of the grove, where sunlight breaks through the trees to illuminate a pond.

A wisened old snapping turtle emerges from the murky water's edge, and crawls onto one of the many rocks bordering the pond. Near the centre of the pond, lit from above by a column of sunlight, there is a wooden raft. People are diving from the raft in blissful arcs, seemingly unaware of the underwater hazards. This is the Math Society.

You may ask where orientation fits in.

Think of orientation as a pair of hip waders with which to stride confidently into your first term.

See you in September.

Ross Morrissey  
MathSoc President  
Fall 1984

P.S. If you're really into water sports, see me in the fall.

## The Editor's Message

Welcome to Waterloo! As editor of this special issue of **mathNEWS**, it is my job to help you find out some of what to watch out for while you are getting acquainted with University life. This issue is meant to be a guide to some of the activities on campus (particularly those with a math student flavour), courses, the co-op system, housing, Math Orientation and a few other things, all mixed with some not-so-serious articles.

**mathNEWS** exists to inform and entertain the students of the Faculty of Mathematics. If anything is happening in the Math Faculty that may affect you, it is our responsibility to carry that information to the students (we often fail, but with a small, studious (hah!) staff, what can we do?).

As a freshman (hereafter called *frosh*), you will be faced with many challenges. All of the programs in the Faculty of Mathematics are intensive, so you may feel shell-shocked after the first week of lectures. After a while, you get used to it, and the Faculty is very helpful if you find that your course load is too heavy to carry. (I'm only taking five courses a term instead of six.) There is also the pressure from clubs and societies to get involved with them during your "spare" time. You will have some time to get involved with other things on campus. (If you don't, and you have no time to relax at all, you are working too hard and should see someone about it.) Watch this extra-curricular involvement closely. I made the mistake of getting too involved with many things and failed a core course because of it.

Don't let the previous paragraph scare you off. As Professor Brillinger said, "The secret is to find a good mixture of enjoying yourself and doing justice to your studies." Some of you may be able to get away with just doing assignments and studying for a few hours before a mid-term or final. Others may have to work an ten or more hours a week on certain subjects in addition to doing the assignments, and not be as gregarious as MathSoc figures you are. Only you can decide how much to study and how much to play.

Once again, welcome. I, too, expect great things of you, and hope you enjoy your studies.

W. Jim Jordan  
Frosh Issue Editor

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Editor-in-Chief: W. Jim Jordan



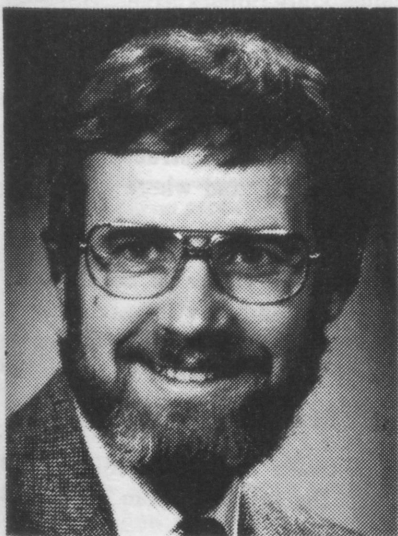
## The Dean's Message

Welcome to the Faculty of Mathematics. For a few days you may feel a bit lost, but it may be some consolation to know that you almost certainly have lots of company! Senior students, faculty and administrators will be glad to help you find your way around, so don't be afraid to ask for guidance. *Operation Mathstart*, operated in Room 5158 of the Mathematics and Computer Building, is a good place to find information, and to meet professors and fellow students. (The free pop and doughnuts are good too!)

We think you will find our Faculty an exciting and challenging place. Of course, you are ultimately responsible for your success here, but we do our best to provide a pleasant and stimulating environment in which to study and learn. For example, some of you might want to get involved in the Putnam Mathematics Competition, which is written by students from several hundred colleges and universities in North America, and in which we invariably place in the top ten. In fact, in 1982 our team placed second to the first place team from Harvard, and in 1983 our team placed third to first place California Institute of Technology and second place Washington University of St. Louis.

As a computer scientist, I am well aware of the numerous opportunities for graduates in Computer Science. This makes it a tempting and attractive choice. However, there is also great demand for graduates in our other programs. Regardless of your choice, I urge you to use every opportunity to take courses "outside" your area of emphasis, because successful work in most areas requires a wide assortment of mathematical skills. In particular, those of you who choose Computer Science should know that a broad mathematics foundation is essential. Similarly, students in other programs are well-advised to take appropriate Computer Science courses, to learn the applications and implications of computers in those disciplines. Our Faculty provides a splendid place to obtain such a multifaceted education.

Once again, welcome to Waterloo. You are a fine group of incoming students, and we expect great things of you. We are glad you are here and hope you enjoy your studies.



J. Alan George  
Dean

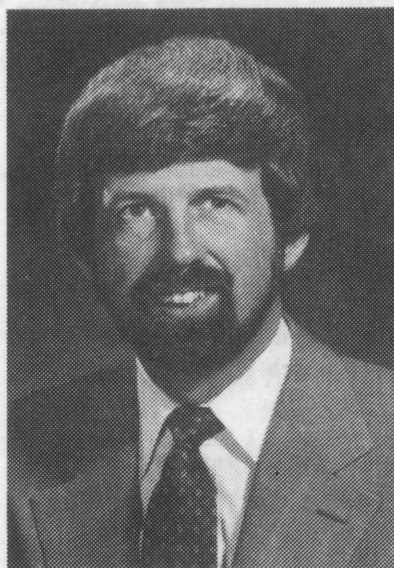
## The Director's Message

As Director of Undergraduate Affairs in the Faculty of Mathematics, I would like to extend a warm welcome to all of you as you embark on your freshman year at the University of Waterloo. We are fully aware that your first few weeks on campus can be rather hectic ones as you adjust to a totally new environment. However, we also hope that you will take advantage of opportunities to make things as pleasant as possible for yourself. *Operation Mathstart*, in particular, is intended to assist you in coping with registration and scheduling problems that often face new students. It is also a chance to meet other students and Faculty members in an informal atmosphere. In addition, your Orientation Package contains all kinds of useful information, and I would hope that you take the time to read through this material with considerable care.

At a large university it is easy to get the impression that nobody really cares about you, and as a result, you can become very much a "loner." I would urge all of you not to fall into this trap. There are numerous people around the Faculty and the campus-at-large who are more than willing to help you get started on the right foot. However, with so many students, it is your responsibility to make new friends, contact Faculty members for assistance, and become involved in campus life.

The amount of work facing you in the next few months is probably greater than most of you have ever encountered before. Nevertheless, if you plan your time carefully, you should be able to give your academic studies their fair share of your hours and still have time left to devote to social and recreational activities. There are innumerable activities on the campus to suit everyone's tastes. The secret is to find a good mixture of enjoying yourself and doing justice to your studies. The actual blend in this mixture will largely depend upon individual interests and academic ability, and these vary considerably from one person to another. Nevertheless, it is vital that you devote some of your time to both scholastic and social activity if you are to have a rewarding time at university.

I urge you not to delay. Get involved and start working right at the beginning of the year. Don't wait until "later." "Later" may just be too late!



Peter C. Brillinger  
Director of Undergraduate  
Affairs

## Confuse<sup>-1</sup>-a-Frosh Dictionary

You will likely encounter most, if not all, of the following words during your stay at Waterloo in the coming months. If you see a word in one of the mathNEWS articles that you do not recognize, check here for more details. Since this list is not alphabetized, you are well advised to read through this dictionary before attempting to understand mathNEWS, much less the University of Waterloo.

**the 'Bun:** The Honeywell DPS 8/49 computer.

**SCuMS:** The Student CMS system, and a description of same.

**Unix:** What all CS students dream about, but rarely get until they reach fourth year or grad studies.

**DEC:** Digital Equipment Corporation, Damned Excellent Computers, Do Everything Completely,...

**IBM:** International Business Machines, Itty Bitty Machines, I've Been Moved! (watch for this if you work for IBM), It's Better Manually...

**BNR:** Bell-Northern Research; Build Nothing Right,...

**Grad Students:** See the article elsewhere for an overview.

**Ponzo's Random Constant:** The number 47. Named after Professor Peter Ponzo, who, anytime he choses a number at random in a class, picks 47. Hence, Ponzo's Random Constant.

**Arts Library:** Also known as *Rubik's Library*, or the Great Sugar Cube In the Sky. Contains many books and assorted documents of interest not just to arts students, but to the university community as a whole.

**Math and Computer Building:** The great grey monolith in which you may spend the rest of your academic days.

**Federation of Students (the Feds):** An organization on campus which aims to represent the students (and more often than not, misses). Operates a few helpful services such as Scoops (ice cream sales), Ombudsman, and a cheap bus to Toronto on Fridays.

**Federation Hall:** A \$7.50 per term on-campus beer hall which should open this fall. More often called *Federation Hole* by those who saw it being built. Also known as *Uncle Tom's Cabin*, in honour of Tom Allison, the Head Fed who stole the idea.

**PAC:** Physical Activities Complex (and it has one!). Take advantage of your season ticket and watch the basketball games here—they're like a party.

**Warriors Band:** A band bigger than the Beatles—numerically speaking. UW's pep band and the Official Band of Canada's 1984 Olympic Basketball Teams (seriously!). Supplier of party music to the PAC.

**Registration:** That time of the year when hundreds of students line up in massive lineups awaiting to spend several hundred bucks for tuition, and waiting to be officially registered.

**Village Zoo:** The major on-campus residence for first-year students, located at the north end of the campus.

**Village One:** Like Village Zoo, but more senior students, single rooms and a higher shower stall/person ratio.

**Village Food:** In two words—*it's consistent*. It's also food fit for a king: "Here King, Here King, Here boy!"

**Village Three:** Sunnysdale (a northern suburb of deepest, darkest Waterloo)

**Village Four:** Robinwood (another of Waterloo's student ghettos)

**Married Students Apartments:** A residential complex containing few married students. This place is next door to the university.

**Bombshelter:** The current campus pub. Located in Campus Centre. Not to be confused with Engineering Lecture Hall.

**Watpubs:** Mobile Bombshelters (q.v.).

**C+D:** MathSoc Coffee and Donut shop, located in the 3rd floor of the Math Building, inside the non-smoking lounge. Contains cheap coffee and donuts, plus other stuff.

**Submarine:** Something available to eat from the C+D, or the Engineering Lecture Hall (q.v.).

**Engineers:** Shameless creatures which are indigenous to the south end of the university. Many of them may be seen committing vandalism against university property, making trite statements about Schrodinger equations and worshipping their idol, the Ridgid Tool.

**Engineering 4:** Officially called Carl Pollock Hall. Home of the EngSoc Orifice, a place that is taboo for mathies except during a raid.

**Engineering Lecture Hall:** (Not to be confused with the Bomb(ed)shelter). A weird, subterranean structure where  $n^{-1}$ -gineers gather during the daytime, and where those taking psych courses gather in the nighttime.

**Campus Centre:** Not exactly in the centre of the campus, but it's a place where many events and services are located. You will also find the Bombshelter there. Watch for the Turnkey Desk, the Games Room and the Fed Office, among other things.

**Break:** This "sculpture" lies between the Math Building and Chemistry 2 (C2). It looks like the creature from *Alien*. (In C2, no one can hear you scream...)



## Dollars and Sense

Needless to say, it is going to cost money to pay for tuition, housing, books, entertainment, and all the other incidentals of a student's life. This is approximately how much you might spend in a single term:

Tuition	\$800
Housing	600
Food	500
Books	150
Other things	200
<hr/>	
Total	\$2250

That's just four months, assuming that you are living off campus (if you live on campus, expect to pay \$1500 for Food and Housing, which brings the total closer to \$2500). Note that the total figure is only an approximation; it could easily cost more or less. Let's take a look at your major expenditures:

**Tuition:** This September, you will be paying \$578.50 per term for tuition, or \$693.79 per term if you are in the co-op program. (If you are in co-op, an extra \$115.29 is assessed to defray the cost of the co-op program). Then, there are mandatory fees such as the university health insurance supplement, which costs \$34.11 for regular students and \$21.32 for co-ops, and the Athletic Fee of \$20 per term. There is also the Federation fee of \$38 a year (\$19 a term for co-ops), of which only \$23 (\$11.50) can be refunded. The rest will be used to pay for Federation Hall, a million-dollar pub facility on the north end of campus. WPIRG (Waterloo Public Interest Research Group) levies a refundable fee of \$2.50 per term. Radio Waterloo (CKMS-FM) and Imprint ask for \$3.50 and \$2.25 per term, respectively. Both these fees are also refundable. Last, but not least, you are paying \$5 to the Mathematics Society (MathSoc) which provides a wide range of services from the Coffee and Donut stand to mathNEWS. More information about MathSoc is available elsewhere in this issue.

If you have trouble financing your education, you might be considering OSAP. Check the Student Awards Office on campus (Needles Hall room 2001) for more information on this process. The Fed Handbook should contain more information about this, and there are other documents around on OSAP. (By the way, OSAP means Ontario Student Assistance Program, not Ontario Stereo Acquisition Project.)

*continued from page 4*

**Co-op Student:** A gypsy with books.

**mathNEWS:** The publication you are now reading. Math students may join this prestigious (?) publication for fame, free pizza and other benefits.

**Chevron:** The former official student paper. Now a forum for the few remaining Marxist dialectics around Waterloo. Usually contains more news from the U. of Guelph and Albania than from UW. Read only for its comedic value. (It wouldn't be nearly as funny if we knew the people who wrote it weren't serious about it...)

All major expenses (such as tuition and housing) should be paid by cheque. Make sure that the account that your cheques are drawing on will have sufficient funds to cover the tuition (\$700-800) plus any housing costs (on-campus residence is easily \$1500 or more, off-campus significantly less).

As for getting money on campus, there is a branch of the Commerce in the basement of the Campus Centre featuring four new Instant Teller machines (note: if you don't already have Instant Teller service, you can apply for it through your Commerce branch back at home; also note that the application process can take several weeks before you have access to Instant Teller.)

If you have an account with the Commerce already, you may be able to use the Interbranch banking facilities to get your money. You might also consider getting a bank account here in Waterloo to handle any local money matters. It doesn't have to be the Bank of Commerce on campus; if you're off campus, there are probably banks that are closer to you. At Westmount Place, you will find branches of Canada Trust (with Johnnycash (that's right—Johnnycash) banking machines) and the Royal Bank. There are also some credit unions in the area for your convenience.

An aside here: we caution you to check for any service charges that might be associated with any accounts you obtain. For example, the Commerce recently attracted a great deal of negative publicity for sneaking in a service charge for withdrawals on its daily interest accounts, even from Instant Teller transactions. *Caveat emptor* (let the buyer beware).

You should consider traveller's cheques for some purposes. You can get them in Canadian funds from \$10's up. There is normally a 1% service charge on the cheques, but they are accepted in various places such as restaurants, hotels, and UW with little problem. You will likely have to show some form of identification, however. Traveller's cheques are also quite safe, compared to carrying a lot of real cash. Talk to your local bank, or American Express office, or other financial venue for more information.

Finally, take care when handling money. Although Waterloo is a relatively safe place to live in, crime is a part of life as it is for any other major Canadian city. Take due caution and carry as little money as necessary. In particular, never leave valuables unattended in any area, especially around book racks or on library tables. A little common sense should go a long way. In any case, mathNEWS wishes you well in your studies (and your finances) here at Waterloo.

**CS:** If you take a look around the south-west side of the Math Building, you will find that UW has acquired a piece of Skylab debris and tries to keep it painted blue. It looks like "CS" from certain angles.

**Watpub:** Mobile Bombshelters.

**WLU:** (Wilfrid Laurier University) The largest high school in the country, next to York.

**Cambridge:** An obscenity in the middle of Highway 8 found between Kitchener and the open countryside.

## The Case for On-campus Living

By the time you read this, you will already have your accommodations in Waterloo arranged (or at least you should; the housing situation is quite difficult by now). However, a few options for housing in future terms here at Waterloo do deserve mention.

On campus housing at Waterloo consists of Village One and Two residences (the major residences) and the four church college residences (Conrad Grebel, St. Jerome's/Notre Dame, St. Paul's and Renison, each representing the Mennonite, Roman Catholic, United and Anglican Churches respectively). Accommodation in the Village residences is open to all UW students. As for the church college residences, admission policies are sometimes restricted and varied; for example, Renison will take just about anyone, while students aspiring to be residents at St. Paul's or Conrad Grebel are required to take courses offered at those colleges. Information on residence requirements and application procedures are available at each of the church colleges.

A factor which may scare you away from on-campus residence is the cost. Yes, on-campus residence does cost more than living off campus. For example, a term's stay at Renison would cost about \$1500, which includes all the meals, cleaning, residence facilities, etc. But consider the off-campus costs: you will live in an apartment or room which costs \$150 a month (for four months, that's a total of \$600), plus your food expenses (let's assume \$400 for the term, for a conservative estimate). Then, there are the complications in cleaning, cooking and incidental expenses. And think of the extra time expenditure in preparing meals, travelling to campus, telephone costs, and the like. Pretty soon, living on-campus does not sound like such a bad idea after all. That is, unless you're living with family or other relatives in K-W rent-free in which case you can ignore this whole paragraph.

What happens when you enter residence for the first time? Well, you will likely see a registration desk, where you will get the keys to your room and receive some more information about the residence. Don't lose those keys, though; you could lose \$20 or more (in key deposits) pretty quickly.

Now that you've found your room and deposited your belongings inside, you might notice things like the closets, chairs, desks, etc. If you have a double room (or even an interconnecting room in the Village) you will meet your roommate sooner or later. Less likely, you will get a single room, which could be a little cramped in some cases. In any case, you will have a telephone (memorise the number!) which will invariably be connected to another phone in a 2-party line (so much for technology here, but it is cheap since you pay only your long distance charges). Make sure you read any and all residence rules.

Next, you might have lunch in the residence cafeteria, where you will learn which foods to eat or avoid as the term progresses. You can also spend some time familiarising yourself with the various rooms and facilities in the residence. Get to know where the washing facilities are. Determine where the TV lounge is (and perhaps whether or not a converter or pay-TV is available).

Since you will have a new address, make sure you memorise it, including the postal code. The Post Office at the Campus Centre basement has change of address cards (postage free) so that you can inform friends that you have moved. Your family back at your previous home can also forward mail to you; you are well-advised to retain your family's address as a permanent address. The permanent address should remain on your driver's licence, but make sure that your parents/guardian will forward anything that looks semi-important immediately.

Okay, now you're into residence life. You will definitely be meeting new people in the next few months, and you will become accustomed to the activities and procedures. You will undoubtedly have floor meetings with the other students on your floor. You will also have a don with whom you can talk or get assistance. It sounds like a lot to get accustomed to, but most people have no problems getting used to residence life.

There's only so much that an article like this can do; a lot of the familiarisation process has to be done on the fly. Whether or not you will be living on campus this term, our best wishes for a good term here at Waterloo. Happy housing.

### What to bring

The following is a basic checklist of items that you should bring to campus if you are coming from outside of the Waterloo area. We aim to list the things that will be essential in your studies, and list some of the things you might like to bring to Waterloo.

### The essentials

- Towels
- Clothes (preferably enough to last a week or more before washing)
- Laundry detergent and associated items
- Binders (at least 2)
- Notepaper (lined, designed to fit the binder; graph paper will also be helpful)
- Pens, pencils, ruler
- Some scrap paper, suitable for rough work on assignments.
- Good clothes (in case of formal occasions, co-op job interviews, etc.)
- Suitcases, trunks or similar devices
- Warm clothing (winter is coming...)
- Cool clothing (...but summer isn't quite over)
- Umbrella or something else to protect you from rain (they don't call it *Waterloo* for nothing...)
- Coat(s) (capable of handling Fall and Winter weather)
- Flashlight
- Calculator (preferably scientific type calculators; HP-15C's are becoming standard, though a TI-55 will do)
- Alarm Clock (preferably indestructible; essential in waking up for those 8:30's)



continued from page 6

## The non-essentials, but usefuls

### Favourite books

A set of boxes to store stuff, and to move it about. These are especially useful for moving to co-op work term and back.

### Magazines

Radio, stereo, blaster or portable television

### Games

### Cards

Add anything else we forgot:

## Alternatives—off campus housing

If you're looking for housing off-campus in future terms (or if you're desperately scrambling for this term's housing), you might want to consider the Off-Campus Housing Office located on top of Village 1. This office maintains current housing lists for the area (and if you're going to other cities on a co-op work term, this office maintains out of town lists as well.)

You might also wish to consider other buildings nearby. There is the Waterloo Co-operative Residence (note: this does not mean residence for co-op students, but "co-op" means that all the residents pitch in to do some of the chores at the residence (usually three hours per week of various things)).

Next door to the university, there are also the Married Students Apartments. "But I'm single," you say. Well, don't worry, a lot of people living at Married Students Apartments aren't married, either. If you wish to live there, try to get a sublet. Otherwise be warned that preference for single people living at MSA is given to upper-year and grad students. Of course, you could get married...

There are the traditional student ghettos such as Sunnydale (referred to as Village 3) and Robinwood (often called Village 4). There is also Cockroach Towers (actually, Waterloo Towers; be prepared to pay a year's rent in eight months if you try to live here, pending the outcome of the lawsuit against the landlord, who uses this tactic) to the east of the university, not to mention other apartment and townhouse complexes in the region. These types of housing are well worth looking into.

If you're living off-campus, don't forget to bring pillows, sheets, blankets and the like, as well as possibly furniture, cooking utensils and an initial supply of food.

Finally, when you're looking at off-campus housing, try to weigh the time you will spend travelling to university, the time you will spend at home, and other factors. If you can, you would be well advised to get housing that's within 10-20 minutes from campus. And make sure you check for any leases, loopholes or any other pitfalls of off-campus accommodation.

## Advanced Insanity

### Math 140/Math 144

If you are usually at or near the top of your class in math in high school, have done well on math contests, and enjoy a challenge, then this is the course selection for you. At least this is what the faculty seems to believe. The advertisements always imply that your mark will likely be comparable to what you would have in regular math (Math 130/Math 134), and that the workload is likely comparable to your other courses.

I put one term in on Math 144A and two on Math 140A and B. I found myself putting in at least fifteen hours a week to complete each assignment in calculus and be quite lost in algebra to the point that I just barely passed the course. The general opinion of preparedness most frosh feel they have will likely be shown to be quite over-confident in retrospect, and so these courses find themselves with folks like myself making up the bulk of the original enrollment, simply because we had nineties all through high school in math. To succeed (or just survive) in these courses, you should be willing to tackle Pure Math, as this is simply what these courses are, in all the horror that the average CS student would feel to theoretical mathematics. From day one you find yourself not only being shown the proofs of various theorems, but being required to develop theorems that those in the regular math courses do not cover until second year from the basest principles.

The main advantage I have obtained is that there are several topics in Math 140B that are also covered in a third year Numerical Analysis course. Unfortunately, this is no longer such an advantage, as both courses have now been reoriented to cover the same topics as the regular math courses, including a common final. This will help in transferability of background, a problem I encountered when finding that Math 130A started by studying derivatives while we developed the full realm of principles that justified integration of a line in a two dimensional space. It helped in allowing you to avoid having to help your roommates with their assignments, partly because they were doing some stuff we didn't cover, and partly because we just couldn't find the time. As advice, be prepared to work every day and evening to follow the topics discussed, as it is absolutely necessary due to the severe complexity of many topics encountered.

## The MathSoc Handbook

### (How to Work Around Mathematical Circles)

The first-ever MathSoc Handbook will be waiting for you when you arrive on campus. This publication is a handy reference about sundry things like MathSoc, mathNEWS, CSC, C+D, Co-op, Exams and lots more. There are even professor ratings! Just come to MathSoc (Math building, room 3038) and get your copy of this unique publication.

## List of Required Electives

In a unanimous decision, it has been decided to make the following list of courses mandatory for filling elective slots. It was recommended that first year students also not take Physics or Chemistry as these courses are useless later in life.

Legend:

*EP*: Easy to Pass (with minimal work)  
*EA*: Easy to Ace (no work required)  
*VI*: Very Interesting (minimal work)  
*NW*: No Way! (this course can kill)

### ACC 121 F 3C,1L 0.5 EP

Understanding and Using Financial Accounting Information

This is a course for non-accounting majors. No weekly assignments, one midterm, one project, final.

*Prerequisites*: two functioning brain cells

### CHEM 123 F 3C,1T 0.5 EP

Introductory University Chemistry

This simply expands on Grade 13 Chemistry. It may not be useful in the future life of a Mathie, but if you've taken high school chemistry, it shouldn't hurt your average. Note that there is also an optional lab worth an extra quarter credit (CHEM 123L).

*Prerequisites*: Grade 13 Chemistry

### CHEM 124 W,S 3C,1L 0.5 NW

Organic Chemistry

In vast contrast to CHEM 123, few Mathies live through this course to tell about it. It requires great memory, and you get very few practice questions. The optional lab might help with the course contents, however. If you're ready for *real* combat, however, then try this one.

*Prerequisites*: IQ of over 170

### CS 1xy, 234, 235 F,W,S 3C,1L 0.5 EA

Introduction to Computing.

Includes all first year CS courses.

*Prerequisites*: warm body

### ECON 101/102 F,W,S 3C 0.5 EP

Microeconomics/Macroeconomics

Introduction to economics; not taxing on the brain, no assignments and lots of multiple choice on midterm and final.

### ENGL 109 F,W,S 0.5 EP

Introduction to Essay Writing 1

Introduction to leisurely studies in University. No final. Write essays, improve work reports, pass ELPE. Be prepared to write essays on the spot, however.

### ENGL 210 F,W,S 0.5 EP

Report Writing

For those who want an outstanding work report.

*Prerequisites*: Second Year standing or above.

### ENV S 111 F 3C 0.5 EA

Introduction to the Study of the Future

Marked on attendance, class participation. Limited enrollment. Sit around, talk about the future. No tests, no midterms, no exam.

*Not offered in 1984*

### ENV S 411 F 3S 0.5 EA

Alternative Future Environments 1

Exactly the same as ENV S 111.

*Not offered in 1984*

### ENV S 412 W 3C 0.5 EA

Alternative Future Environments 2

Similar to ENV S 411, but no reading.

*Not offered in 1985.*

### GEOG 101 F,W 2C,2L 0.75 EA

Introduction to Human Geography

This course is actually interesting. Anyone with grade 11 Geography can ace this course (except Geography Majors!). Final is 50% multiple guess, 50% short answer. *Especially easy if Geoff Wall is teaching.*

### HLTH 140 F 3C,1T 0.5 EP

Introduction to Health Sciences 1 Focus, of course, is on Grade 7 health concepts and the reproductive system.

### MTHL 100 F,W,S 2C 0.5 EA

Commercial and Business Law for Math Students

Basic law concepts made simple. An easy and interesting course, especially if Barney Lawrence is the prof. *Note 2 hours of lectures per week.* Read the text, however, as the prof will not cover all of the material during the lectures.

### MUSIC 100 F,S 3C 0.5 EP

Introduction to Music

Learn introductory music. Several quizzes are given during the course for you to practice the material. Listen to lots, lots of music. You get to do concert reviews, too! Good fun that is well-recommended (but possibly a bit costly, depending on your choice of concerts).

### PHIL 140 F,W,S 3C 0.5 EP

Introduction to Formal Logic

Introduction to bird courses. While not necessarily easy to ace, this course is difficult to fail. Cannot be taken concurrently with PMATH 430A. (*Hint—PMATH 430A is on the CS option list!*) These courses can be taken on different terms.

### PHIL 145 F,W,S 3C 0.5 EP

Critical Thinking

In this course, you will examine various types of fallacies and arguments. A favourite text for this course is "Logical Self-Defense". However, keep in mind that this course has sometimes been split up into three sections taking three different sets of texts.

### PHYS 121 F 3C,2T 0.5 EP

Introductory University Physics

Takes off from where high school Physics left you. You can use the material to impress friends back home about refraction, gravity

and other fun stuff. Not too bad, but the work can pile up somewhat. (Note: PHYS 121A is available for the super-intelligent, and an optional lab for this course can net you an extra quarter credit.)

### P SCI 291 F,S 3C 0.5 EA

The Canadian Legal Process

This course is not available for credit to engineers because it brings up their averages about 5%. No texts, no assignments. Also not available to Political Science students.

### P SCI 292 W,S 3C 0.5 EA

Issues in Canadian Criminal Law

Like P SCI 291 except that this course deals with issues in Criminal Law. Make sure you pre-register for this class early, as it fills up quickly.

### PSYCH 101 3C 0.5 EP

Introductory Psychology

Learn what Psych majors obtain degrees in. Learn techniques in "Behavioral Science." Neat facts about electroconvulsive therapy. Great course for lab animal fanciers. Multiple guess final.

### PSYCH 236J 3C 0.5 VI

A Psychological Analysis of Human Sexuality

*Offered at St. Jeromes.* A good course to desensitize one to sexual taboos. Movies are viewed during course (i.e., *Not a Love Story*, etc.), essay on personal history or course related topic to be done at end of term.

*Prerequisites*: PSYCH 101 or parental consent

### SCI 205 F,W,S 3C 0.5 EA

Introduction to High Fidelity Sound Reproduction

Listen to music, learn about buying and making stereo equipment. Multiple choice midterms and exam.

*Credit will only be granted for one of SCI 205 or STEREO 101.*

### SCI 238 W,S 3C 0.5 EP

Descriptive Astronomy

This is a non-mathematical approach to astronomy designed for science, math and engineering majors. An optional weekly lab will be held at night to look at the sky.

*Prerequisites*: Grade Six Science or equivalent

### SCI 270 F,W 3C 0.5 EA

An Introduction to Nuclear Science

A course designed for 3rd year Poli Sci students. Three midterms, no exam. (Each has two parts, one arts, one math, you may do either one, but not both.)

Sean and company



## Sleeping Accomodations

At first, the vast array of courses you will find in your student calendar will seem a bit confusing, to say the least. As a Mathie at Waterloo, you will have to choose a certain number of electives to meet your BMath degree requirements. Unlike some universities (and in fact, some programs at Waterloo), you are quite free to choose your electives without having to meet certain subject quotas (i.e. you don't have to take  $x$  number of Arts courses, or  $y$  number of Science courses; you are free to take whatever non-Math electives you need as long as you have 12 electives at the end of your four or so years here.)

Let's take a look at the major first- and second-year courses required for most BMath degrees.

**MATH 130A, 130B, 230A, 230B**—Welcome to the wonderful world of Calculus! You get to do the Grade 13 differentiation all over again, except that this time it's covered more intensely and in more detail. If you can get through 130A, it's time to do some tough integrals in 130B. If that hasn't stopped you, you can go on to do integrals and derivatives in more than one dimension (it just jumps out at you in  $n$ -D!) Finally, if you can survive all that, you can still be killed off in 230B, wherein you do Green's Theorem, differential equations and complex series, all in one term. Watch with horror as the class average drops to 40%! What fun!

**MATH 134A, 134B, 234A, 234B**—These courses represent the Algebra component of the Math program. The first term features such entities as the Chinese Remainder Theorem, and other strange theorems that you have not heard before. The second half of first-year Algebra consists of Gaussian elimination and other operations on poor helpless matrices. In second year, linear transformations and more matrix operations are covered in 234A, and the wonderful world of abstract algebra is opened up with a course in group theory (234B). The Algebra sequence is not as inherently difficult as the calculus sequence, but it, too, takes some honest effort.

**CS 180, 140, 234, 235, 240, 250**—The field of Computer Science is always changing, and Waterloo is constantly changing, too. You will likely work with a microcomputer network of some sort, such as the microwAT system. You will learn languages like COBOL (CS 180), FORTRAN (CS 140 M0), Pascal (CS 140 M1, 234, 240 (CS majors only)), 6809 (semi-structured) Assembler (CS 235, 250 (CS majors only)), WSL (CS 250) and SNOBOL (CS 240). CS 240 is the first "real" computer science course in that it teaches more than how to program. After first year, languages are not taught formally; the approach is similar to "Here's the language reference

manual; the assignment is due in two weeks." Note that after first year, CS courses with a second digit of 4 or greater are open only to Honours CS majors.

**C&O 230**—This is the introductory course in Combinatorics and Optimization at UW. It is a required course in some departments (notably CS). You get to learn Graph Theory (not graphs as in those funny charts as you will find out) and Combinatorial Analysis (finding out how many things of such and such there are). This course can sometimes kill a few people off, so be warned. The class average is usually around 75% on the graph theory and 35% on enumeration. Both halves of the course are weighted equally, so if you do well on one part, it will offset a potential disaster on the other.

**STAT 230/231**—In second year, you can expect to do some statistics. The first term (230) material should not be too bad, but the second term material (231) can prove to be quite an abstract jungle.

**MATH 000**—This "course" is a non-credit co-op orientation program. Lectures are given by people involved with the Department of Co-ordination and placement and serve as an introduction to the co-op program. You'll learn how to write a resumé, handle an interview, fill out your job application and ranking forms and a whole lot more about the co-op program. It's easily skippable, but always worth attending so you know what you can do through Co-ordination. If you are in Stream 4, you get this course in the fall term; Stream 8 co-ops get it in the winter. If you are in the regular program, you are spared the extra hour on your timetable.

**MATH 010**—This is another pseudo-course on timetables of students taking any of MATH 130A/B, MATH 134A/B, CS 140 or CS 180. It is a two-hour slot in which midterms and special tutorials can be scheduled without conflicting with a night lecture (there's no chance to get a night class on the night this lab is scheduled unless you ask for a permissible conflict (see the material from the Faculty about your Registration/Pre-Registration Form)). Don't worry; the course instructors will let you know which weeks they will require the night lab. When the courses don't use the time, it's yours to use as you will. Don't let any other explanation confuse you on this point.

These are the major first- and second-year courses required for most programs. For a list of elective courses and descriptions, see the "List of Required Electives" article elsewhere in this issue. (These descriptions aren't meant to frighten you off, but to show that the courses aren't as easy as you might think...)

## MathSoc Blurb

The Mathematics Society consists of all students enrolled in a Mathematics program (eg. Accounting, Computer Science, Business Administration) at the University of Waterloo. By a democratic process an Executive Council, including class representatives, is elected to head this student body. The structure is very similar to a High School Students' Council as most of you know it. Our

primary goals encompass many areas of university life. Our emphasis is not just on organizing copious quantities of social and athletic events! We also feel it is important, as liasons to the teaching faculty, to represent the students in administrative and academic concerns. This area pertains to student representation with disciplinary procedures, changes in courses and degree requirements, and issues that arise with regard to fulfilling student needs for suitable working resources.

Along with the entertainment and student representation, we also provide numerous well-used services.

For those of you who have been involved in a student organization before, you are aware of the rewards and good times which come with participating. For those of you who have not tried it, being an active part of MathSoc comes highly recommended. We are looking forward to having you and your great ideas with us in September! Get involved.

## CSC Flash!

The University of Waterloo has one of the premier computer science programs in the world. However, it's easy to get lost or ignored with all the research and seminars going on. Fortunately the Computer Science Club (CSC) exists to encourage undergraduate interests in all areas of computer science (except numerical analysis (snicker)). The CSC is a student chapter of the Association for Computing Machinery (ACM), which is a large (50,000 member) organization of computer professionals.

The CSC is a club run for the students, by the students, and funded by the Math Society and by membership dues (\$2.00). We have club meetings every few weeks (snicker). These meetings feature lectures by famous guest speakers on the latest developments in the computing sciences. Most terms we offer tutorials on some of the computing environments around campus. We also have the CSC Friendly Consulting Service. We'll do our very best to solve your problem (unless of course, you are programming in COBOL (snicker)).

The CSC is located in MC3037, across the hall from MathSoc. The office itself has a sometimes useful library of CS books and magazines, a terminal, a disintegrating couch, an everfull teapot and lots of friendly interesting conversation. This is where the executive hang out between classes (and sometimes during them!).

We are planning an introductory orientation meeting sometime during the first week of classes; it's about "What's happening in CS at Waterloo". Be seeing you...

Jan Gray (jsgray@watmath)

†UNIX is a trademark of AT&T Bell Laboratories.

## Clubs at UW

While you are at Waterloo, you will find a wide variety of clubs. Here are descriptions of some of the clubs that are around and are of interest to Math students.

### Watsfic

As you search for MathSoc to enthusiastically pay for your frosh fees, you may notice a slightly pregnant dragon on the door. Know then that you must abandon all hope, for you have entered *Not The MathSoc Office* (a.k.a. WATSFIC (*Waterloo Science Fiction*)).

WATSFIC's extensive library is a portal to myriad alternate universes, while those foolish enough to reach more deeply into our world will find the nexus of a large role-playing community (i.e. AD&D, Runequest, Call of Cthulhu, etc.). Many non-role-playing games (what?) are also available.

So, if you have difficulty dealing with the harsh realities of calculus and the outside world, come into our parlour for a more restful (?) existence.

## UW Amateur Radio Club

Amateur Radio is a hobby that has been around as long as radio itself. From the simple pulses of Morse Code to the complexities of packet switching, amateur radio provides a broad spectrum of activities. If you would like to communicate all over the world via shortwave, or in town with "2 metres" VHF radio, contact UW's Amateur Radio Club.

UWARC maintains a radio room in Room 3352B in Engineering 2. Its equipment includes an FDK Multi-2700 Multimode 2 metre transceiver, Drake Twin 4C's (HF), some SSTV and RTTY equipment, power amps and various pieces of antenna equipment. UWARC also has a small library of radio magazines and callbooks for you to read. You need only be a holder of an amateur certificate to operate VE3UOW, the club station.

Even if you don't hold a licence or certificate, we would still like to hear from you. We can tell you how to get your amateur radio licence, or we can direct you to the various amateur radio agencies available.

Watch for posters for the first meeting, or contact Roger Sanderson in room 2362 in the Engineering 2 building when you arrive on campus, or at 885-1211, extension 2607. 73 (best wishes) for now.

## Warriors Band

What is black, white and gold; has anywhere from 10 to 80 legs and turns crowds all across Canada? The University of Waterloo Warriors Band.

The Warriors Band is starting its 18th season this year with the boost of being named The Official Band of Canada's 1984 Olympic Basketball Teams this past July. Besides leading the Canadian cheering at international basketball games in Canada, the Band has local commitments—to put down other universities' football teams in the stands while they're putting ours down on the field, to cheer our basketball team to a third straight appearance in the CIAU Final Four (to be held in Halifax), and to just plain have fun at sporting events and anything else we see fit to attend.

Don't worry about instruments or music; we have some of each available. Though we don't officially practise (it would destroy our reputation), the band meets once a week for an hour or so to try out some of the music and see how we are sounding. The time commitment is what you want to make it, though we do want people who will take the band seriously.

The big events of the fall term are the Fifth Annual Complete and Utter Destruction of the University of Western Ontario Mustangs Marching Band in London on October 27, and the University of Waterloo Naismith Classic Basketball Tournament in mid-November.

Watch for posters during Orientation Week (or shortly thereafter, depending on who decides to stop their procrastinating first).



## What is mathNEWS?

(Yeah, what is it, anyways? -ed)

Every second week, while classes are in progress, a miraculous occurrence happens here at the Grey House. It all begins with a sudden burst of activity in MC 3035 on Monday morning of the week. Periodically, a raving lunatic clutching large sheaves of scribbled comments, stolen posters, outdated newspapers, and failed assignments will run in a mad frenzy to MC 3038 (MathSoc), pick up whoever is so unfortunate to be using the computer terminal at the time, throw them across the room, crash their program (and possibly the multi-user computer they were using), and log on to [mathnews@watdcsu](mailto:mathnews@watdcsu). **mathNEWS** production night has begun (at 8:30 in the morning).

So what is this pseudo-miraculous development supposed to do, anyhow? **mathNEWS** is the student newspaper of the largest (and the best) faculty of the University of Waterloo, and one of the finest in its category (he hasn't been reading this article then -ed.). With an eleven year history of overcoming student apathy toward removing its funding and putting together a real newspaper in its place, **mathNEWS** has shown itself to be a source of real news (ie. both rational and irrational -ed) and a forum for intellectual discussion (huh??? -ed), and on occasion, a humorous introspection of the inhabitants of the grey house, the mathies (especially those of set **R** -ed). Armed to the teeth with long-standing tradition (trodden upon with each subsequent issue -ed) and a pride in the Canadian history in journalism (such as the Toronto Sun) attempts are underway to make this a respectable publication.

Okay, we're nothing like *Enginews*, the bastion of disgusting, nor are we like the *Chevron*, bastion of the dogmatic ideology (which means, "Don't believe a word they say, nobody else does!" -ed). We are a bi-weekly (sometimes tri-weekly) (tri-weekly, sometimes bi?) publication that has as its main focus the news of the Math Faculty, and to a lesser extent that of the University community in general. Either that or we are focusing on getting another slice of one of the many production night pizzas (paid for by MathSoc), even those on an actual production night! In addition, we serve as a forum for the average mathie from which his voice may be heard throughout the Faculty. And on those few occasions when we find that we need to pad out part of a page, you may find a somewhat humorous article (**mathNEWS** is only 77% padding -ed). Paid for by your MathSoc fees (see, they are actually quite worthwhile. How else would we be able to afford any pizza?), this is your own news source. We are answerable to you and always at your service. Read us and enjoy, as we may be one of the few laughs available at some times of the term.

Scooter!  
Former **mathNEWS** editor

## In the SAC

*The Student Advisory Council*

If you're in co-op (like most people), you'll soon become intimately familiar with the bowels of Needles Hall, where the Department of Co-ordination and Placement is located. You may become irritated by late postings, by the unavailability of co-ordinators or by some other thing.

*Don't Panic!* Help is near! Since it is *you* who is paying for the co-op system (with the co-op fee), *you* can make a difference in the way the system works. The Student Advisory Council (commonly known as SAC), consists of co-op students from all faculties and a representative of the Department. Its function is to advise the Department in implementation of various policies, and to examine solutions to various problems encountered by co-op students. In the past term, SAC dealt with questions such as availability of interview schedules on weekends, timing of work-term co-ordinator visits and the co-op student questionnaire. The council also receives the latest statistics on job placements (which are frequently passed on to **mathNEWS**). Last term (spring '84) there were some 20% more jobs in math than students looking for work...

If you have a concern that you'd like SAC to discuss, find one of the Math SAC reps or drop a note at MathSoc (in MC3038) for "SAC reps". Their (the reps') pictures are also posted by the reception desk in Needles Hall. There may also be an opening (or maybe two) on SAC for math students; if you're interested, contact MathSoc (still in MC3038).

## Ted, the Engineer Frosh (or, the Waterloo Hillbillies)

(to the tune of *The Ballad of Jed Clampett*)

Now this is the story of a frosh named Ted.  
During Campus Day last March EngSoc got into his head.  
They introduced him to the Tool and introduced him to the crew  
and up through his brain came a bubblin' brew...

Beer, that is.  
Molson Gold.  
BYOB.

Well, the first thing you know, ol' Ted's an engineer.  
His kinfolk said, "Ted, move away from here!"  
His mom said, "Ted, here's a bottle of shampoo..."  
And he loaded up his truck and moved to Waterloo...

Village II, that is.  
Laurel Creek.  
Lots of ducks.

You don't let him near, you hear?

M.L.E.

## MathSoc Services

**COFFEE & DOUGHNUT SHOP** 3rd floor lounge  
25 cents for coffee and various good eats. Operating at close to non-profit.

### mathNEWS

A bi-weekly (sometimes tri-weekly) Math student publication to keep you up-to-date on events and issues. Good light entertaining reading.

### LOUNGES MC 3001 & MC 3002

A meeting place to eat, study, or just take a break. MC 3001 has vending machines.

### Mathletics

Intramural sports program organized each term. Many teams are co-rec. Waterpolo, flag football, hockey, volleyball, etc. Something for everyone.

### PHOTOCOPIER MC 3038 MathSoc Office

Letter and legal size copies on our XEROX 4000.

### OLD MIDTERMS & EXAMS

Good study resources.

### FROSH ORIENTATION

It takes place the week before classes in September. Events include scavenger hunts, pub crawls, and making new friends. ALL math frosh welcomed.

### LOCKERS

Early each term all lockers on the third floor are distributed to students on a first come-first served basis.

### AVAILABLE FREE FOR YOUR USE IN THE MATHSOC OFFICE MC 3038

- staplers (big and small)
- scotch and masking tape
- music to the lounges
- lost & found
- telephone (local calls only)
- electric typewriter
- University course calenders
- INFORMATION!!
- change (bills and coins)
- matches
- first aid kit
- paper clips
- 3 hole paper punch
- automatic pencil sharpener

### FOR A LOW PRICE

- buttons
- rulers
- tickets to pubs
- locks for lockers
- pink ties
- T-shirts

### ANTI-CAL RESULTS

A publication of course and professor evaluations. This process is done each term by the faculty.

### ORGANIZED SOCIAL EVENTS

Oktoberfest, Wine & Cheese, Watpubs on work-terms, Movie Nights, Pubs, and much more fun.

### AND FOR THAT FATEFUL DAY...

Graduation Photographs and the Mathematics Graduation Ball

*continued from page 10*

## ASEANS

The Association of South East Asian Nation's Students was formed in Fall 1982. Its membership, currently numbering about 60, is open to all. This policy reflects the association's dual objectives of both providing South East Asian foreign students with a 'home away from home' as well as a channel through which cultural interaction between all students may take place.

In accord with this, the club organizes various social activities; some of which in the past involved Bar-b-ques, ski excursions, camping trips and social functions to celebrate festive occasions. An editorial publication, 'ASEANEWS' is periodically distributed to members, to keep them informed about the latest news from home.

Any enquiries may be directed to Henry Yeo (888-7728) or Charlie Soh (886-4086).

## Theatresports

Theatresports is an improvisational comedy group that puts on a regular weekly show featuring performers from the University and beyond. It originated in Calgary, and has since spread across Canada and picked up an enormous following.

Theatresports involves two teams of performers who take turns improvising entertaining scenes based on suggestions from an audience. A set of three judges scores the scenes on how entertaining they were, and so the teams compete to produce the best and most exciting scenes they can. The result is lots of fun, for the audience and for the performers.

Improvisation means working without a script, without a set, without anything but your wits and your imagination. It doesn't take brains, it just takes creativity; if you want to find out more, come out to a Theatresports workshop. We can teach you everything you need to know to perform on-stage without a script and survive; in fact, more than survive. We can't guarantee you'll be another Robin Williams, but we can guarantee that you'll have a heck of a lot of fun.

Theatresports is always looking for new performers, so if you have a sense of humour and enjoy performing in front of people, this may be just the place for you. If you're not a performer at heart, come on out and watch the fun anyway. The time and place changes from time to time to keep our audiences on their toes, so be sure to check the Imprint (the campus newspaper) for details.



## Co-op Adventures

If you have registered in Waterloo's renowned Co-op program, you might like to know what will be happening to you during the next few months.

You might have heard of the concepts of "Stream 4" and "Stream 8". "Stream 4" means that you spend the first four months at Waterloo (i.e., for your 1A term), and then go out to work in January. Otherwise, you will be in "Stream 8" and spend your first academic year on campus before venturing out into the work force next May.

If you specify Stream 4 on your co-op application, you will likely be in Stream 4. If you specify no preference for the stream, you will likely be in Stream 4. If you desire Stream 8 and don't have a great reason for choosing Stream 8, you will likely be asked to go to Stream 4. The choice of streams should not really be critical for most of you; Stream 4 only gets you out into the real world earlier than Stream 8. You spend two summers here at Waterloo in any case. In 4B, no matter what stream you started in, you get to see who's left from the other stream after the ravages of Calculus.

You will need to know how to write a resumé, and submit 25 copies of it to the Department of Co-ordination and Placement early in the term. You might find guidebooks on resumes in the Arts Library or at Needles Hall. You might also want to consider reading a book on the subject of job hunting and resumés; check a library (say the Arts Library here on campus) or many bookstores. Remember to follow the guidelines that the university gives you, though.

Soon, you will find out about Co-ordination and Placement—that administrative body on campus that handles the co-op program. Co-ordination deals with co-op students, co-op employers and others involved in the program. You should be hearing more about them when you arrive on campus. You will also become familiar with the term "co-ordinator," or a person who looks after a given number of co-op students and co-op jobs.

In the meantime, you should be attending the *Math 000* class, which is an orientation course to the co-op program. This course deals with sundry topics as the job interview process, resumes, learning objectives, and more. You will even be introduced to the concept of the work term report, which is an epic document that you have to produce during most of your workterms, and submit to Co-ordination. Make sure you attend the classes as they give an invaluable introduction to the co-op program at Waterloo.

Did someone say "Interview?" That's the time of the term when you see dozens of students dressing up to meet various co-op employers (yes, formal dress is important during job interviews). The jobs are not handed to you on a silver platter; rather, there is a bit of a "selling" job to do on your part. Understandably, you might be nervous about meeting employers for the first time, but simply be familiar with the types of questions that the employers will ask you, and be familiar with your abilities as a potential employer. Once again, the *Math 000* class along with other literature from Co-ordination should be helpful in this area. After you have had all your interviews, pick up something called a rankings sheet from the front desk at Needles Hall, and proceed to rank the employers that you have had interviews with.

After all this, you should have a job. A few weeks after your last interview, most students will be matched with an employer via the rankings process using a special computer program. You rank the employers, and they will rank you. Throughout all this, the student does not find out how the employer ranked him/her, and vice-versa. If, for some reason, the computer fails to find you a job, there are the "second round" interviews in which a co-ordinator is assigned to you. There is a lot less choice in this case (i.e., you have to take the interviews the co-ordinator finds for you), but, fortunately, there are usually some employers left over and late jobs coming in. Only a few students should be unemployed after this.

Finally, if you are a co-op student, you will be taking part in an educational experience matched by few universities in Canada. The co-op program provides an incredible combination of school, experience, and even adventure. Best wishes in your years here, and see you at Needles Hall.

## The University Transition

If you're reading this paper, chances are your Math marks were well over 85% at your high school. Pretty good by most people's standards. But it takes a certain type of mind to make the transition from the math you've perfected to the looser, yet more rigorous kind you'll see here.

For a while, and particularly if you are in General courses and not Honours, you will continue to see practical applications for every problem you are asked to do. Otherwise you'll be doing a lot of mental gymnastics, and maybe not understanding much. Some people will find they have a 'mental block' against university math. This block is not always alcoholic or even adolescent.

There really is a big difference in what you're going to see! Here's the biggest difference: *Drawing vs. Describing*. In high school, you've done a lot of individual problems. You know the techniques that you know because you did several problems from one section of your course work. Maybe you spent three weeks on surface and volume calculus. You've done enough mental depictions of the general principle that you know how to use it once you see it again. You've been drawing different pictures of the same mountain. Now you have to start describing! In what ways is this mountain (surface/volume calculus) like other mountains you've seen?

Maybe you've seen problems you don't think you could possibly solve. Like, what regular polygons are constructible using straight-edge and compass? You'll know how to do these problems in a year or two, but not without doing some abstractions. No one told you how to do this. It's not even multiple-choice! You are crossing the line from applied math into pure math. The whole concept of exactitude and rigour, which is vital to the best intentions of mathematics, is based upon the idea that, with enough thought, you can see all those mountains and point out every single similarity there is. You can have all the methods and tricks you need to get your answers on paper, but you **do** have the capacity to see beyond these.

It may mean sitting up till 3 on Thursday night, with your eyelids almost shut, but sometime you'll think up things you never thought you could. And no, you don't need to read racks of books; that can be the biggest waste of time available to you as a university student, depending on your style of learning.



## Great Cities of the (Canadian) World

Welcome to Waterloo, one of the few cities in Canada with two (count you will be for the next little while (with any luck)). A little data about Waterloo might be helpful during your stay here.

### What to get

First of all, you should get a map of the Kitchener-Waterloo area if you do not have one already. You may get a map at most bookstores, or at the Turnkey Desk here on campus. You might also want to obtain other things such as tourist guides to this area.

### Transportation

Transportation within Kitchener-Waterloo is the responsibility of Kitchener Transit. It currently costs 75¢ to ride the bus here. If you plan to ride quite often, there is a transit pass available from Kitchener Transit at a cost of \$31.50 per month. This pays for itself if you plan to ride the bus more than 42 times per month. The three routes which pass by UW are:

- 1) Number 7 Mainline: This route travels between the University and Fairview Mall in the south via downtown Kitchener and Waterloo via King Street. Service frequency is no worse than 20 minutes on a 7 day a week basis;
- 2) Number 8 Loop: This route also travels between the Universities and Fairview Park Mall, via side streets and the Kitchener Transit terminal downtown (the route resembles an "8" on a map).
- 3) Number 12 via Hallman: This is a new route which will begin this fall. Number 12 buses will go from the University, down along Hallman, then reach Fairview Park Mall via a quicker route than either the 7 or the 8.

The transit information number is 885-7373. Remember that number since Kitchener Transit hides this number quite well in the blue pages of the phone book. In addition, you should find bus schedules near the north entrance of the Campus Centre, along with a bus map (which is somewhat outdated). Also, you may make use of the Telerider facility; to determine when the next Number 7 or 8 bus will be near South Campus Hall on campus for example, you can dial 888-1304. (South Campus Hall is a time point for the #7; it waits there to get back on schedule.) Check the phone numbers on the various bus stops in the area or in bus schedules and remember them for future reference.

One method of getting out of town is the bus. Buses to Hamilton, Toronto (express buses available!), London and other places travel to and from the Gray Coach terminal downtown on Gaukel St. near Charles (to get there from campus, take a #7 bus going southbound and get off at Gaukel and King, (around the King Centre mall); walk West along Gaukel for 1½ blocks). There are also Gray Coach buses which go past the universities. Call Gray Coach at 742-4469, or check with the friendly ladies at Eaton's Travel in South Campus Hall for more information. (Eaton's Travel will also sell Gray Coach tickets, and at a cheaper price than at the Gray Coach terminal in Kitchener!) Note that buses to Toronto generally depart hourly from Kitchener for Toronto.

The Federation of Students also subsidizes express buses to Toronto from the campus on Friday afternoons and return buses (from Islington station) on Sunday nights. The cost was \$5.50 one way last year; this year's price is not yet available.

If you're looking for anything but a bus, you might consider VIA Rail. Their Kitchener terminal is near the corner of Victoria and Weber (east of King St.). It's a five to ten minute walk from King St. You can get to the terminal via the #7 bus; just get off at Victoria Street, at the Tim Horton donut shop. Just watch for the tracks! VIA Rail provides good train service to London and Toronto. Call (800) 268-9520 for train information and rates from Kitchener. Note that some trains can get you to certain cities faster than bus, and there are some very good return travel discounts (but of course, these wouldn't be valid on Fridays). Check it out!

One final word on travel: you can check the ride board over by the north-east entrance of the Campus Centre. This board usually lists rides to sundry places in Ontario (and even the continent). If you need a ride, or if you have a ride to offer, then visit this board.

### Media at at Glance

**Newspapers:** *Kitchener-Waterloo Record* is the local daily (6 days a week, 30¢); *Toronto Star*, *Globe and Mail* and the *Toronto Sun* are also available in the area (and in front of South Campus Hall on campus). *Waterloo Chronicle* is a popular local weekly (popular only because it is delivered free to off-campus residents in Waterloo).

**AM Radio:** Pop stations include CHYM (570, Kitchener), CKOC (1150, Hamilton), CFTR (680, Toronto), CHUM (1050, Toronto), CJBK (1290, London). Other types of stations include CKKW (1090, Kitchener; good for sports), CBL (740, CBC Toronto), CKEY (590, Toronto), CFRB (1010, Toronto), and more. If you're lucky, you might get Detroit or Buffalo stations, too.

**FM Radio:** Rock stations around here include CHUM-FM (104, Toronto) and Q-107 (Toronto), and possibly CFPL-FM (96, London). "Alternative" stations include CFNY (102.1, Brampton (almost Toronto; their transmitter is located on the CN Tower)), CKMS (94.5, UW's own radio station). If you want to become a DJ, then contact the CKMS people, or watch for announcements. Country stations include CKGL (96.7, Kitchener) and BX-93 (London). More mellow stations: CFCA (105.3, Kitchener) and CKDS (95, Hamilton). For the news hounds, CKO can be found at 99.1 (Toronto) or 97.5 (London).

**Television:** CKCO (13, CTV, Kitchener), CBLT (5, CBC, Toronto), CHCH (11, Independent, Hamilton), Global (6, Toronto), TVOntario (28, Educational, Kitchener), CBLFT (61, CBC French, Kitchener), CFPL (10, CBC (sort of), London). Lots, lots more via cable (although the channel numbers will be played around with somewhat), plus some other Toronto signals and Buffalo signals. Check *K-W Record* or *Toronto Star* TV listings.



# Pinkie

## or, Why the Pink Tie

### is Our Mathscot

Besides being the fourth (or first, depending on which way you count) finger on either hand, Pinkie was the University of Waterloo's Mathematics Society's official mascot (usually spelled Mathscot).

As the legend goes, once upon a time (sorry, that's the fairy tale version)... As the legend goes, there was a professor of mathematics who just loved to wear outlandish gaudily coloured ties. It just so happened that this prof was also the founding dean of the math faculty. The MathSoc members at that time chose a tie as MathSoc's official emblem and pink as the official colour.

Pinkie is not a name for a symbol, which leads us to another story.

During the construction of the Mathematics and Computer building in November 1967, just as they were constructing the sixth floor, a group of mathies decided that the building was an ugly monstrosity (funny, some people still say that).

They came to the conclusion that it needed a decoration of some sort. Late one Sunday night a couple of weeks later, if you happened to glance at the Math building about midnight, you would have seen five mysterious people working on the roof over the main entrance. Monday morning there was an 85-foot pink tie hanging down the front of the building.

The tailors of that tie went on to bigger and better things and MathSoc got stuck with an 85-foot Pinkie (just think of the dry cleaning bills).

Pinkie is officially missing in action (someone has it somewhere, but the engineers have irreversibly desecrated her). Her legend, though, lives on in the Pink Tie you wear as a Waterloo Mathie. (Aren't you glad that there's a meaning behind it, rather than thinking that we're being sadistic in making you wear one?)

{Adapted from mathNEWS, Frosh Issue 1974}

continued from page 14

## Entertainment

The Kitchener-Waterloo area usually features first-run movies at various area theatres. In downtown Kitchener, you might try the Cineplex, the Capitol or the Lyric. In Waterloo, there is the Waterloo Theatre. For movies and live entertainment, you can find ads in the *Kitchener-Waterloo Record*, *Imprint*, or other local paper. Various facilities include the Centre in the Square (located just off Queen Street; the Number 8 bus along Weber St. will get you there), the Kitchener Auditorium (off Ottawa Street), and of course, the HUMANITIES Theatre right on the UW campus (and everyone knows that there's no place like HUM). Check the Yellow Pages for other entertainment spots.

## The numbers you need to know

Keep these numbers as a handy reference while you are in Waterloo. (Note: for extension (ext) numbers, call 885-1211 (University Switchboard) first.)

Emergency	911
Kitchener Transit	885-7373
Gray Coach	742-4469
VIA Rail	(800) 268-9520
Humanities Theatre	885-4280
University Switchboard	885-1211
University Security	ext 3211
Health Services	ext 3541
MathSoc	ext 2324
Turnkey Desk	884-8770
Your number	

## Real Mathies

If you got this in the mail, then you are going to be a Mathie; in actuality, a University of Waterloo Mathematics Student. Now, what is a Real Mathie? Well, some of the features of a Real Mathie are:

Real Mathies...

- take PHIL 140
- avoid STAT 333
- $\mathbf{R}_M \subseteq \mathbf{C}_M$
- can form a nilpotent matrix at a whim
- live *lms* and prosper
- know the Greek alphabet (but not necessarily the order of the letters)
- have a VDT (video display tan)
- can draw a straight line freehand, even though they are too bazooed to walk one
- can do with eight hours of sleep...a week
- know  $\pi$  to at least a hundred digits
- use real calculators like HP-15C's...not quiche-grade pretenders like the TI-55
- wear pink ties
- don't drink decaffeinated cola
- don't drink decaffeinated coffee
- don't drink decaffeinated anything

## Real Computing

As a mathie, you will have to take a computer course to get your degree. In fact, most mathies are in the faculty for the computer science program; and why not? Waterloo offers one of the best computer programs on the continent. However, here are a few computer pointers for your first computer course:

First, the idea in programming is to make your program as efficient as possible, while keeping 'readability' in mind. 'Readability' requires that the program be easily understood by anyone else reading your program. This includes the addition of comments to your program, making sure that the program itself looks as pleasant as possible to the eye, and is easily readable. Efficiency requires that the program be written so that it will run in as little time as feasible. Many of you will have had experience on a microcomputer, possibly using the BASIC language. For those of you who know BASIC, here's an idea of the techniques and practices behind state-of-the-art computer programming (except for the programming language):

```

100 FOR I = 1 TO 20
110 PRINT "FRIEND OR FOE?"
120 INPUT F$
130 IF F$ = "FRIEND" THEN GOTO 170
140 IF F$ = "FOE" THEN GOTO 190
150 PRINT "INCORRECT ENTRY"
160 GOTO 110
170 A = A + 1
180 GOTO 200
190 B = B + 1
200 NEXT I
210 PRINT A; " FRIENDS AND "; B; " FOES."
999 END

```

Now, consider this version:

```

50 REM *****
60 REM * This program counts friends or foes *
70 REM *****
80 REM
100 N = 20
110 FOR I = 1 TO N
120 PRINT "FRIEND OR FOE?"
130 INPUT F$
140 IF F$ = "FRIEND" THEN GOTO 180
150 IF F$ = "FOE" THEN GOTO 190
160 PRINT "INCORRECT ENTRY"
170 GOTO 120

```

```

180 A = A + 1
190 NEXT I
200 PRINT A; " FRIENDS AND "; N-A; " FOES"
999 END

```

Notice that in the second version we got rid of one variable (B), since we either counted "FRIEND" entries or "FOE" entries. There were A friends out of N repetitions of the FOR loop, thus we will have N-A "FOES". The rewritten program also uses one less GOTO statement, hence there is a little less sleuthing by anyone who wants to trace the flow of your program.

Ideally, a programmer tries to strike the best balance between the amount of memory used (storage) and the speed with which the program runs (efficiency). For example, the fastest program in the world is of no great advantage if it uses up ten times as much memory as another program that runs only slightly slower. Of course, the exact tradeoffs to be made depend on the computer used and the circumstances involved in a given programming problem.

In terms of readability, notice the changes made for the second program. The lines within the FOR loop are indented so that someone reading this program can easily spot which instructions lie inside the loop. Comments were also added to describe what the program is supposed to do. Note the use of the variable N to represent 20. If a programmer wanted to, this variable can be easily changed later on. (Note that it is not a good idea to use actual constants (like "20") in a program; rather, a variable name should be used so that when a constant needs to be changed, all a programmer needs to do is to change the initial variable; all the other occurrences of the constant will be changed automatically.)

Finally, the exact style that you will use depends upon the style that others want to see in a program, whether they be employers or CS profs. After a while, you can develop a style more or less of your own, based on guidelines that you will learn. The ideas and comments above are just a beginning to the concepts involved in university programming.

Certainly, a lot of your preconceptions about computing may be shattered. Real programming in a university environment (and indeed, the real world) is a far cry from tinkering with BASIC on a microcomputer. You may soon learn why BASIC is a relatively poor language with which to work with (the GOTO's can be hard to follow, for one thing). As your exposure to these concepts grows, (and the marker for your computer course is taking off marks for some errors that you were not aware of) you will see that there is indeed a lot more to computer programming than meets the eye.



## Guide to Stairways on Campus

One thing that the University of Waterloo can offer you is one of the most interesting campuses in Ontario. On the whole it is a very nice campus and quite enjoyable to live on if you don't mind always walking into the wind.

One of the things that gives this campus its character is the variety of stairways you will have to negotiate in your years here. This is a short guide to aid you in some of the more challenging ones you'll 'run into'.

### South Campus Hall Main Entrance

This is the first staircase you'll see on your way in. It goes at  $\pm 45$  degrees to the desired direction of travel. It has dangerously sharp points and should be avoided by the chronically clumsy. Its beauty is provided by floral decorations which are left to die in the winter. It also contains the Ontario government's propaganda plaque claiming credit for this great institute of learning.

### South Campus Hall Stairway to Tunnel

This should be used only by those of you wishing to get to arts. Put on your sunglasses, the decorating is unique.

### Hagey Hall Front Staircases

These are not necessary for access, they are merely trail markers. They are cement with iron railings down the centre so that drunks (and arts profs) may fall off the side and tumble downhill.

### Stairs Behind Hagey Hall

These appeared to have been designed by a senile, Mayan pyramid builder (or arts prof). They are guarded by strange totems to some unknown pagan deity (or arts prof). They are best avoided just in case.

### Found Behind Psychology

First, you must find the back of Psychology (also known as PAS). These are cement stairs going 20 feet down into a cement pit to a storm drain. They are not attached to any building.

### Psychology Stairways

(NOTE: the author did not venture into the PAS.) These appear to have been stolen from the TTC. Some lead into Psych; some lead around and above Psych; and some are best not discussed. There is even one that leads to Psychologist's Leap. They have cement benches for the weary and confused.

### Behind Arts Lecture Hall

Here is another pit and door. They must have been very popular at the time of construction.

### Between Arts Library and Arts Lecture Hall

This is about what you'd expect to find between Arts Library and Arts Lecture Hall. It is a wandering staircase of 9 steps in 3 tiers of 3 each for easy navigation by artsies. It's.....different.

### Stairs Into Arts Library

Dana Porter Arts Library was a marvelously designed building. When it was being designed they took everything into account. They considered the weight of the building. They considered the weight of the bookshelves. They even considered the weight of the students using the building. They did not, however, consider something very important: the weight of the books. Hence, with ten floors filled with books, it sank. It sank so far, in fact, that they had to dig a moat around it so that you could look out the first floor windows. Thus, the stairway into the library leads over the moat. It may not be a great stairway but I like the story.

### The Main Staircase Inside Needles Hall ("The Stairs")

This is, beyond a doubt, the most obnoxious, grotesque and dangerous staircase on campus. It was undoubtedly designed to cut down the size of the co-op classes to fit the number of jobs available. The steps themselves run at 45 degrees to the direction of the actual staircase. It cannot be negotiated with dignity. It is best handled by doing the famous John Wayne amble.

### Stairs Into, Around, and Part of Engineering Lecture Hall

It is impossible to say what is stairway, what is wall, and what is roof. What can I say, it has to be seen to be believed. In case of confusion, use the side entrances.

### Stairs Between Chemistry and Biology

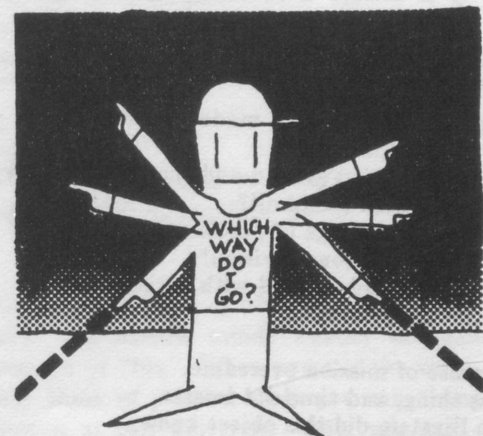
These appear to be normal sets of steps at first glance. In actuality they are the second most wretched stairs on campus. They are intricately designed such that each step is  $\pi^2/3e$  strides in length regardless of the distance of the stride. It is best to detour through Chem and Physics risking exposure to less dangerous things such as gamma radiation and virulent toxins.

### Middle Stairway in South Wall of Math & Computer

This actually starts out as a ramp from the first floor to the external doors. Then, it becomes a normal stairwell up to the third floor. At the third floor, it runs 90 degrees to its original direction and takes you to a locked door on the fourth floor which gives you instructions on how to get to the EMS library.

I trust you will take this article in the seriousness it is intended. Do not underestimate some of these stairs! They can be killers! Do not let them stop you from obtaining your degree.

irwriter



## Revised Emergency Procedures

In co-operation with the Mathematics Society, there have been additions made to standard University emergency procedure. Please read the following very carefully:

1. In the event that an invasion by Engineering students is about to occur, an Engineer Alert is in effect.
2. When an Engineer attack is imminent, sentries are to alert all Mathies in the Math Building. The sentries will notify all Mathies of an impending Engineer attack, and all Mathies are subsequently advised to wear the standard distress signal (i.e. a pink tie worn upside-down). In addition to this, all operations of MathSoc are to be suspended immediately so that office staff may coordinate the emergency measures.
3. Upon hearing the Engineer Alert, all mathies are advised to secure the following:
  - 10 litres of water in a suitable container
  - appropriate defensive weapons
  - lots of pink materials (paint, ties, confetti, etc.)
4. Upon arrival at the Math Building, the engineers are to be herded into either MC2065 or MC2066. Both rooms should be prepared for defensive action.
5. No defensive action is to be taken until the entire invasion force is contained in one of the aforementioned large rooms.
6. Students doing battle with the Engineers are to dispose of their containers of water and other materials liberally among the invasion force. Refills are encouraged.
7. The Ridgid Tool is to be confiscated by the highest-ranking officials of MathSoc present, and to be subsequently paraded around the Engineering buildings by a large task force of mathies, along with the Pink Tie.
8. Captured engineers are to be treated under the conditions of the Geneva Convention. MathSoc shall disclose the identity of the hooded engineers to which the Ridgid Tool was attached at the time of attack and publish the full account of the attack in **mathNEWS**.

## Various Unwritten Conventions

- [1]  $U$  is always open in  $\mathbf{R}$ .
- [2]  $\epsilon$  is always greater than zero, and is accompanied by  $\delta > 0$ .
- [3] Diagrams always commute (MacLaren's Theorem; otherwise we wouldn't bother writing them down.)
- [4]  $i$ ,  $j$  and  $k$  are always integers.
- [5]  $p$  is always prime.
- [6]  $p$  is always the number of vertices in a graph and  $q$  is always the number of edges.
- [7]  $G$  is always either a group or a graph. If  $G$  is a group, then  $H$  is a subgroup of  $G$ .
- [8]  $f$  is always a function. If you need another function, then it is  $g$ . If you are especially greedy and want a third one, it is called  $h$ .  $\phi$  and  $\psi$  are also functions, but using them is in the same genre as crossing 7's (what's wrong with crossing 7's? -dwarf). Nice people don't talk about more than five functions at a time. (But then, Pure Mathies aren't all nice people...)
- [9] Should you have to integrate  $f$ , it's integral is  $F$ .
- [10] Geometry was first popularized by the Greeks. In deference to them, we call angles  $\theta$ ,  $\alpha$ ,  $\beta$ ,  $\gamma$ . (Note the order of preference.) Roman letters are not in good taste.
- [11] Integers are always chosen from  $i$  to  $n$ . This is so that FORTRAN programmers can figure out what's going on.
- [12] All matrices have dimensions of  $n \times n$ ,  $n \times m$ ,  $m \times n$  or  $m \times m$ .
- [13] There are  $n$  balls in every urn.
- [14] The probability of success is always  $p$ .

Digitigrade, its way it made  
up from its filthy pit;  
it stretched and groaned and thought, "Today,  
what sin shall I commit?  
Perhaps a slippage of precision,  
or travesty of long division?"  
It laughed and cackled with derision,  
as onward it did flit.

A sense of mission overcame  
this thing, and time did freeze.  
No Einstein did this object know,  
surpassing  $c$  with ease.  
Silent, and with no display,  
it scissored through the Milky Way  
separating curds from whey  
and making lots of cheese.

Through space and time, through present rhyme,  
the error swiftly leapt.  
It found a wanton hiding-place  
and in it deftly crept.  
And there, within the student's proof,  
it caused the monumental goof  
which caused the prof to hit the roof  
and call the plebe inept.

So watch the Creeping Error, boys,  
take care when you compute.  
Avoid subtraction when you can;  
no matrices commute.  
Be pure of heart and stout of will;  
the mathie's world is fraught with ill.  
You can't afford to err until  
your fame's beyond dispute.



## The FASS Frosh Quizzie

Well folks, you're going to have to get used to writing quizzies. This university loves to pester you with piddling little tests that count half a per cent towards your final mark if you do well, but count as thirty black marks against you if you flub them. These annoyances are commonly known as quizzies. (Said one young lass to her professor, "If that was one of your quizzies, I'd hate to see one of your testies.")

At any rate, in the interests of preparing you for the many, many quizzies you'll be writing in the next three, four, five, or twelve years, the FASS Theatre Company hereby offers you a SURPRISE quizzie that you must pass in order to be admitted through the front gates of the university. Names and mug shots of those who flunk will be given to all campus security guards along with orders to shoot to kill.

Good luck!

### Questions

1. What four-letter word begins with "F" and refers to a way to enjoy yourself with other persons?
2. What enjoyable but unnatural act is said to cause insanity, blindness, and hairy palms?
3. Is it possible to expose yourself to hundreds of people in the dead of winter without getting frostbite?
4. What's the difference between a make-out artist and a make-up artist?
5. Where's the best place on campus to go for a good time (wink, wink, nudge, nudge)?

Well, that's the test. Now put down your pencils, pass your test to the person behind you (last person in the row to the person in front), and let's get ready to mark. Here are the answers.

### Answers

1. The word is FASS. FASS stands for Faculty, Administration, Staff, and Students, the people who get together every year to put on the funniest show on campus. You can enjoy yourself watching it this February, but you can enjoy yourself even more by coming out and being part of the madness. The organizational meeting is Tuesday, September 22. Watch for our posters to tell you where it's going to be. By the way, when we say "meetings", we almost always mean "parties". We'll come back to those later.
2. The unnatural but enjoyable act is writing for FASS. You see, before the show goes on next term, we have to pull together a script filled with jokes, puns, and songs. If you've never written before, don't worry; almost everybody else is in the same boat. Even if you aren't interested in putting pen to paper, watch for our posters and come out to our writers' brainstorming sessions, just as an ideas person. Don't worry

about the side effects of becoming a FASS writer—the insanity is fun, and the blindness and hairy palms only begin to develop after a few years' overexposure. As compensation for these threats to your mind, all writers will be able to attend FASS's parties (we'll come back to those later).

3. Yes, it is possible if you're getting exposure by being on-stage with FASS. Acting experience is no prerequisite for being part of FASS's cast. What you need is the enthusiasm to devote your spare time to rehearsing and learning lines. In return for your devotion, you get to come to all of FASS's parties (we'll come back to those later).

4. We don't know what a make-out artist is (well, maybe we do, but we aren't saying), but a make-up artist is just one of the people who works backstage each year for FASS. We need people to work on make-up, costumes, sound, lighting, props, carpentry, publicity and advertising, and lots of other stuff. We also need people to organize FASS parties (we'll come back to those later).

5. Where's the best place on campus to go for a good time? By now, you should have guessed that good times are to be had for all at our FASS PARTIES! In the fall, there may be such things as a coffee house, a hay ride, roller skating, and what not. In the winter, FASS will have lots of real live parties paid for in whole or in part by the proceeds from the show itself.

The point is that FASS is not just an organization that's dedicated to putting on a funny show; it's a group of folks who are interested in having fun and getting to meet other people on campus. If you're interested in the same things (and who isn't?), look for the FASS posters and come out to our organizational meeting (party). It could be one of the best moves you make at university.

## Do's and Don'ts for the Mathie Frosh

*Do* try to get here early, get a map, and find out where your classes are.

*Do* spend time on your studies, but

*Don't* ignore your social life.

*Don't* bring your textbooks to class. All that you need is paper & pens.

*Do* attend all of your classes.

*Don't* act like an engineer.

*Don't* be a geek (variation of engineer above).

*Do* come to mathNEWS production nights. We need more frosh writers.

There is trouble in the land of Math, young frosh. People with thick glasses and narrow minds wander the halls, ignorant of the concept of "fun". When you say the word "party" to them, they think of politics. Only *you* can change the face of Mathematics at this university. Only *you* can create fun for yourselves. Try to make Math '89 the envy of the campus! It won't be terribly hard.

## The Theory Jack Built

This is the Theory Jack built.

This is the Flaw  
That lay in the Theory Jack built.

This is the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Erudite Verbal Haze  
Cloaking Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Turn of a Plausible Phrase  
That thickened the Erudite Verbal Haze  
Cloaking Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Chaotic Confusion and Bluff  
That hung on the Turn of a Plausible Phrase  
That thickened the Erudite Verbal Haze  
Cloaking Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Cybernetics and Stuff  
That covered the Chaotic Confusion and Bluff  
That hung on the Turn of a Plausible Phrase  
That thickened the Erudite Verbal Haze  
Cloaking Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Button to Start the Machine  
To make with the Cybernetics and Stuff  
To cover Chaotic Confusion and Bluff  
That hung on the Turn of a Plausible Phrase  
That thickened the Erudite Verbal Haze  
Cloaking Constant K  
That saved the Summary  
Based on the Mummery  
Hiding the Flaw  
That lay in the Theory Jack built.

This is the Space Child with Brow Serene  
Who pushed the Button to Start the Machine  
That made with the Cybernetics and Stuff  
Without Confusion, exposing the Bluff  
That hung on the Turn of a Plausible Phrase  
And, shredding the Erudite Verbal Haze  
Cloaking Constant K  
Wrecked the Summary  
Based on the Mummery  
Hiding the Flaw  
And Demolished the Theory Jack built.

Anonymous

---

## Grad Students

You have been told of the horror of the engineering student, the anonymity of the optometry student, the learnedness of the arts student, and of course the supremacy of the math student. But there exists yet another type—the Grad.

Of whatever faculty, grad students have a natural superiority complex. Unlike the egotistic undergrad engineer, they know they don't have to tell you that they're better. After all, the signs are obvious:

One of the most noticeable differences between you and THEM is the office—they have one, you don't. Thus they can work in the cool math building on hot days, drink their own Timothy's Special Blend coffee or Earl Grey tea, and store all sorts of wonderful amusements safely—chess boards, backgammon sets, etc.

Another advantage grad students have is the Grad Club—it's far more personal and quiet than the Bombshelter, and the beer is the cheapest on campus.

Grad students also have NSERC grants—this is the money the Canadi-

an government pays them to help maintain their cars. Or other expensive amusements not afforded to undergrads. Mind you, NSERC grants really pay for the course the grad student takes, usually not more than two per term. Thus he can do nothing with far greater ease than you, struggling under six.

The pressure of their workload forces many grads to behave in a peculiar manner. Some may be found at 2:00 AM playing frisbee in a narrow hallway or pushing each other madly about on swivel chairs. They feel they can act this way since they've already been through what you're just beginning.

If being a grad student sounds like good fun—it probably is. One of the best ways to find out is to befriend a few. They may lead you astray—but they may also lead you to the Grad Club or take you flying. You may become a pseudo-member of the group and be allowed to sit in their office, drink their Timothy's Special Blend coffee or Earl Grey tea, and play a little chess...



## Orientation Director's (Late!) Message

So you've been accepted by the Math faculty at Waterloo...very impressive, congratulations! Now, you may be wondering what we're like down here. Are we shy, conservative, conventional and reserved? Will you fit into our Friday night gathering where we sit around to discuss and prove our favourite theorems? Wrong...sorry, forget it! You are about to be embraced by a group of stupendous, party-hardy people who will make your life worth living again (just in case you've read the course descriptions). The Faculty's responsibility is to introduce you to academic life and the M & C (Math and Computer building). But the dirty job of keeping your social life is all up to us. Who are we, anyway? We are MathSoc (Mathematics Society—better get used to buzzwords). You see that line on your tuition statement under student society fee? That's us (and if you've paid, you're part of MathSoc too—how about that?).

Over one hundred mathies (and proud of it) have courageously volunteered their time to organise and run a week of events for all you frosh (not so proud, yet). In order for you to get to know us and everyone else, you've been grouped into "families," each of which is headed by a volunteer Big Brother and Big Sister. These two are upper-year students who'll ensure you don't get lost in the crowd. Throughout the week they'll be helping you get adjusted to life at UW (one guess as to what that stands for). And hopefully this friendship will last all term and beyond. Perhaps they can help you with course selection, tell you where the best eating places are or point out where you can buy the official mathie drink—the Pink Tie. (Why P.T.? You'll know soon.) Throughout this **mathNEWS** you'll find adverts for all the different events we have planned for the week so I'll let them speak for themselves.

I know what you're thinking. You're shouting "How do I get involved in this momentous occasion; where do I sign?" Easy, just come up to the third floor of the M & C during the Drop-In Centre hours. This is where, for a minimal fee, you pick up your indispensable Frosh Package. In the package you'll find buttons, a passport to the week's events, coupons, and, yes, the infamous Pink Tie. This Official Math Pink Tie is your ticket to *all* math events, you *must* wear it all week. And while you're there, you'll meet your Big Bro and Big Sis. You say you can't 'cause you don't know what they look like. Well, we thought of that—there's a board with pics (more buzzwords) of all the Big Siblings and it too is located on the third floor. In addition, the entire committee is dressed in either pink or black shirts with their names on them. Ha! So now you've got no excuse whatsoever!

Will all this excitement end on Sunday? (well, that's a stupid question—but someone's gotta ask.) No. MathSoc sponsors events all throughout the terms. Expect to see Pubs, Road Trips, Mathie paraphernalia on sale in the MathSoc office and, of course, you've heard of the spectacular Math Wine and Cheese. (You haven't? You *will!*) There's more (I can't think of it now, but trust me), and during work term there's the Watpubs held weekly at new and <insert buzzword here> pubs. Also, the wearing of your Official Mathie Pink Tie will give you a discount rate for most events.

Hopefully you'll decide Math Orientation '84 is the place to be...logic dictates it is.

Later,

Lisa Seabrooke  
Director  
Orientation '84

Don't forget to pick up your frosh package at the Drop-In Centre.



The Official Math Pink Tie will be your ticket to all events.

Drop-In Centre:	
Tuesday 4	1 PM - 9 PM
Wednesday 5	10 AM - 6 PM
Thursday 6	10 AM - NOON
Friday 7	10 AM - 4 PM

\*Registration\*  
\*Registration\*

# The Time of Your Life (Part I)

## The Fun Crawl

What is ... a fun crawl? (should we start playing patriotic music in the background here?) Well, you crawl from place to place having fun. (Let's start the patriotic music) It's a time to get out and enjoy yourself and the company of many others where you stay as close to sobriety as to at least remember your own name. Actually, thanks to the timing of ELPE (where's that patriotic music? Coming boss, as soon as I fish thee plane out of the lagoon where it crashed with thees week's guests.), we lost one event ("She's got legs..."), which we hope to get back later in the week (No, no, Tattoo, that is not patriotic music! Sorry boss!). Right now, we have Pioneer Sportsworld (<insert real patriotic music here>), which is like Canada's Wonderland without Scooby-doo or the Smurfs (Aahhh!!!), and roller skating, leading up to a surprise event (even the typist hasn't heard about that one! - typist), and coming back to the Villages, home of our very own Village People ("At the Y-M-C-A..." NO!! NO!! Not the Village Inquistition!! No one expects the Village Inquistition <insert evil, devious laugh here>!!). Pioneer has a waterslide, so bring along a bathing suit.

But why would you want to go on the Fun Crawl when you could go on the Pub Crawl? (Yeshh? What ish wrong with the Pub Crawl?) First, there are places that serve liquor along our route (I'll drink to that!), if you want to use them

and are of age. Secondly, age will be checked *very* thoroughly on the Pub Crawl, and even if you do sneak through, you don't want to spend the evening explaining to the six police officers drilling you that it was a mistake when your birth certificate was done up that causes it to list you as being born in November 1965, and that you were actually born in November 1964. As well, if you meet someone, you should be roughly in better shape to remember them than if you were on the Pub Crawl (I met someone who I almost married on the Fun Crawl - typist). As well, your head should not be screaming at you the following morning.

The Fun Crawl gets underway immediately after ELPE and the buses will be clearly marked and sitting outside the PAC. As the Pub Crawl buses will be there as well, if you don't get asked for ID, you are on the Fun Crawl. To cover things like skate rentals and miniature golf and the likes, bring along twenty dollars or so (Maybe a bit extra to bribe the organizer), your pink tie as you can't get on without it, and I'll see you there!

British Petroleum

(No, they aren't the sponsors, that's just my nickname)

## Dear Frosh

When I came to university I hadn't known what to bring to school with me as I didn't have an older brother or sister. So I brought it all. Three carloads of the stuff: everything I owned or that was given to me or that I had ripped off somewhere along the way. Mom and Dad weren't thrilled and when I left school after my first term I had four carloads. They were definitely not pleased. If I had been in regular it would have probably been five or six. They would have disowned me.

What I learned through this ordeal was that I needed only a few things as I was either too busy to use my old things or just went out and bought new things. So a year (and two moves later—not counting work-terms) I realized that these minimum supplies could be collected and titled the:

### Frosh Survival Kit

#### General Items (in order of importance)

1. Money (opens doors)
2. Beer (will open all others)
3. Bottle Opener (except for new twists)
4. Tunes (silence does not exist)
5. Cork-screw (for the ritz!)
6. Pink Tie (very fashionable)
7. Cheap Sunglasses (for Monday morning lectures)
8. Fake-ID (see later)
9. Band-aids (ouch!)
10. Towels (bathing, sunning, sausaging)
11. Toothbrush (getting dog out of mouth)
12. Tacks (defy gravity)
13. Knapsack (get a good one)

14. Paper (8 1/2" x 11", punched, lined, 3,000,000 sheets)
15. Pens (find someone who works at Bic, 3,000,000)
16. HP Pocket Computer (keeners need only apply)
17. Nickels (\$200.00 for photocopying)
18. Winter Coat (it snows in December)
19. Rain Coat (it rains all the other time)
20. Timetable (kind of important)

#### Items Determined by Gender (Sex--Oooh!)

Male	Female
21. Frisbee(s)	Mace
22. Razor	Lady Shaver
23. Suit and Shoes	Dress and Shoes
24. B-O Juice	Perfume
25. Dirty Magazines/GQ	GQ/Dirty Magazines
26. Big Sister (Bro)	Big Brother (Sis)
27. Tenacity	Tolerance

So as you can see, we've narrowed this down to but a few particular articles (which should fit into a car or two (plus an 18-wheeler for the pens & paper -ed.)). Anything else you decide to bring is, of course, up to you. Use some discretion please and leave a little room for Mom or Dad to drive the car. With these twenty-seven items you can make it through university. Well, that requires an open mind, a very open mind. See you at Orientation...

Blake  
Director  
Foot Gumball Rally



# READ THIS

## YOUR UNIVERSITY CAREER DEPENDS ON IT FROSH WEEK REGISTRATION

Your Frosh Week and life in general at Waterloo will kick off on Tuesday, September 4. That afternoon, you are asked to register for the Frosh Week activities and receive your Frosh Kit.

Registration:

Tuesday, September 4 1:00 PM - 9:00 PM

And if You Are Late (No Late Fees):

Wednesday, September 5 10:00AM - 6:00 PM

Frosh Week Registration : \$ 13.00 (Cdn)  
(includes your FROSH KIT (no sales tax))

### Important

*You need not lose your democratic rights. Advanced polls for the September 4 election will be held on August 25, 27 and 28 in your riding. Please vote then, and don't miss frosh week!*

Registration will take place in the third floor lounge of the Math and Computer building.

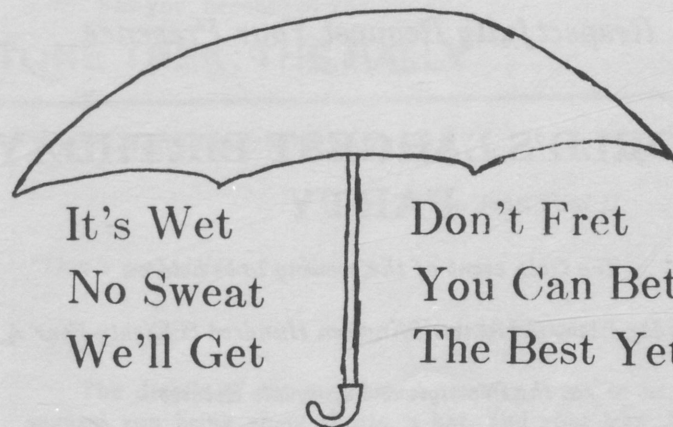
## Frosh Test # 1

What do the following have in common:

1. Richard Starkey
2. Gray Coach
3. C<sub>2</sub>H<sub>5</sub>OH
4. Strawberry Fields
5. Cows, Pigs, & Walruses
6. Eggs

To find out  
Come let us take you away!  
Thurs. Sept. 6 11:00 am

It's Coming to Take You Away!



It's Wet  
No Sweat  
We'll Get

Don't Fret  
You Can Bet  
The Best Yet

In case of rain, come to the Wet Weather Flicks in MC  
PS. Remember, rain's not all bad - it prevents forest fires

LECTURES, ELPE, PUB/FUN CRAWL

**NO TIME TO EAT?**  
Come to the  
**FACULTY-FROSH BBQ**

Wednesday, September 5, 1984

4:30 to 7:00 PM

- \* Free food before the ELPE and pub/fun crawl
- \* A great opportunity to meet the pros in an informal article.
- \* A chance to get to know the other Mathies you met at the lectures (or wished you met)

**SHOW YOUR MATHIE SPIRIT**

**COME FOR THE FOOD, STAY FOR THE FUN!**

*Waterloo's High Society*

*and Smokey the Bear*

*Respectfully Request Your Presence at the*

**WORLD'S LARGEST BIRTHDAY PARTY**

*The Gala event of the evening to be held on*

*Saturday Eight September Nineteen Hundred & Eighty-Four A.D.*

*at the Prestigious Sunnydale Estates*

R.S.V.P.

*Pink Tie, Fake ID required*

**Opening Festivities**

**Tuesday Sept. 4 - 9:00 pm**  
**3rd floor Math & Computer Building**

**8:30 pm - Families meet**  
**2nd Floor Math & Computer Building**

*Music*  
*Free Refreshments*  
*Wear your Pink Tie!*

**Note:** We will have a couple of TVs for those who wish to watch the election results.

A funny thing happened on the way to the masthead (that's what you're reading now...first, we actually had articles ready ahead of time!!, then we got the last article done BEFORE the I/O room ~~down~~ down-stairs closed, and then we set a record for the largest mathNEWS ever produced (by boy, is Math Soc's treasurer in for a shock)...oh well. Writing credits belong to the following people (they didn't pay their silencing money soon enough): Dave Leibold, Tom Watts, Scooter!, dwarf, Barb Lundhild, Ross Morrissey, the Math Faculty Undergrad Office, Orientation 1984, W. Ross Brown, Brian Scarce, Jane Roberts, irwriter, M.L.E., Jan Gray (Mr.), Anne Kristensen and Sean Romenco. Our production crew was a cast of thousandths: Scooter!, Tom Haapanen, Dave Leibold, Carol Goulette and yours truly, W. Jim Jordan. You've now seen what the official purpose of the masthead is...now it's time to show you the unofficial use... Any unused space is available for the editor's personal gratification. After working 14 hours straight on this rag, I need some release. I guess it's worth it though; I know I found my frosh issue helpful...Good, only about seven (now six) lines left...this is one of the many ways we have to fill white space in an issue--it's our most popular feature!! (rabbit's foot, not exclamation point!) ;Que? A multilingual keyboard? What fun! Oops...last line...gotta go...wjg out



## Big Sibling Is Watching You

Dear Frosh/Frosheutes:

The 1984 Math Orientation Big Brothers and Sisters extend a hearty welcome to all of you. We have been working hard for months to make sure that Orientation will be one of your most memorable experiences here at Waterloo.

Somewhere in the Frosh Package is the name of your Big Sibling (or Siblings in some cases). When you get here, pictures of all Big Siblings will be on display outside the third floor lounge of the Math building (the Grey House). We hope you will find your Big Sibling as soon as possible. He or she (both in some cases) will inform you of the upcoming events and give you a list of items on which he wants you to spend negligible amounts of money. As well, you will meet a dozen or so of your classmates with the same Big Sibling.

Doesn't this all sound like such *fun*? (It actually is if it doesn't.) We think so. Orientation is a great way to meet new friends, get acquainted with university life, and learn not to care about ELPE. Your Big Sibling is sure to agree on all three counts.

We sincerely hope each of you will participate in your Orientation. It's the best way we know of to beat the end-of-summer blues.

See you in September!

Rob Cooper  
Carol Goulette  
Big Siblings Co-Chairmen

## Wally Wally Blake Productions presents...

An event to get you passionately entwined in your first term  
An event to help you feel through the sensual contours of the campus  
An event to stimulate your inner drives  
An event that will have you quivering with elation and make your knees weak



*There has never been an event like this at the University of Waterloo and there never will be. It's a race against time, it's a race against competitors. Match your wits, fry your wits, lose your wits. The esoteric items you'll learn will rival the knowledge of our fourth year friends. Learn it all in a day. Never get lost again.*

The all-afternoon event for  
Friday, September 7  
For you, because of you

## TUNE TREK: THE RALLY

"Roll up, Roll up for the Magical Mystery Tour, step right this way!" Join us for a day of fun (WOW!!), thrills, and excitement in a land far, far away. Just listen to what others have said about last years trip:

*"Better than the Pub Crawl....I think"*

*-Anonymous Frosh*

*"We are glad Mr. Turner cancelled my tour; now I can come again."*

*-Queen Elizabeth II*

*"I even kissed the ground when I left"*

*-Pope John Paul II*

*"That's a good idea for a song"*

*-Paul McCartney*

The details of the trip are a mystery, even to us, but I suggest you bring along shorts, a hat, and your legs. As this event is on the day after the Pub Crawl your minds and your cookies can be left at home. The journey begins at 11:30 a.m. Thursday Sept. 6 behind the M&C. Be there or be Wally!

## Math Orientation 1984

### Schedule of Events

Date	Day Event	Evening Event
<i>Tue Sept. 4.</i>	Drop-in Centre 1:00 pm - 9:00 pm "Meet your family!"	Family Gathering and Dancing 9:00 pm - ??
<i>Wed Sept. 5</i>	Drop-in Centre 10:00 am - 6:00 pm (open during Faculty Introduction Lectures)  Faculty/Orientation Committee BBQ 5:00 pm - 7:00 pm	ELPE - 7:00 pm  Fun Crawl/Pub Crawl 8:00 pm - ?? Buses leave from North side of the Math & Computer Building  All-Nighter in V-II
<i>Thu Sept. 6</i>	Drop-in Centre 10:00 am - 12:00 noon  Magical Mystery Tour 12:00 noon - 6:00 pm Buses leave from North side of MC (Food & Drink provided)	Federation of Students BBQ & Dance 6:00 pm - ?? Columbia Field
<i>Fri Sept. 7</i>	Drop-in Centre 10:00 am - 4:00 pm  Tune Trek - Foot Rally 1:00 pm - 5:00 pm Meet at blue "CS" sculpture outside MC	Pub with EngSoc 9:00 pm - ?? Waterloo Motor Inn
<i>Sat Sept. 8</i>	Elora Gorge 1:00 pm - 5:00 pm Sun, Fun & Water	Fake-ID Party 10:00 pm - ?? See your Big Brother or Sister for details

## The Federal Election

### and You

As you probably know, we are in the midst of a federal general election campaign, which will culminate on September 4 in the selection of a completely new government. However, the timing of the election could be considered as less than perfect for university students, since September 4 is also the beginning of Orientation Week and the registration period at the University of Waterloo.

If you are in Waterloo on September 4, and you are not from the K-W area, you cannot vote, since you were not here during the enumeration

period. You must vote in your home riding, either on September 4, at an advance poll on August 25, 27 or 28, or at the riding electoral office in the three weeks preceding September 4. We strongly recommend voting at the advance poll so you will not miss out on the fun of Orientation Week at Waterloo.

In case you're wondering, **math-NEWS** has semi-officially endorsed the Rhinoceros Party (just for the fun of it; as a paper we are officially apolitical). We encourage you to exercise your right to vote, and to make an informed vote.