

Your friend,

math **NEWS**



Volume 48 Number 0

frosh issue **1988**

Society Presidents' Messages

Two different streams of MathSoc require two different Presidents. The President (and Executive) are elected from time to time by the Math students at large. Each is responsible for running the affairs of the Society during the term(s) of his/her election. Among the many duties of the office is the welcoming of Frosh...

Lisa Falco—Pres. Fall 1988

Welcome to the wonderful world of the Math Society (MathSoc). My name is Lisa Falco and I'm your MathSoc President. Just to let you know a bit about me, I'm in 4th year Computer Science—Information Systems and I've been involved with MathSoc for about 2 years. As you will read in coming articles, MathSoc is a very busy place. The reason for this is that we serve every registered Math student, including you.

During Orientation Week, you'll learn a great many things about the Math Faculty and the university. That's also when I and other MathSoc types will be out recruiting fresh new faces like yours to volunteer to help out in the MathSoc office. The most common and least demanding job is the role of office worker. You will spend one or more hours helping out fellow Mathies. There are many other things to do as well.

If you think you might be interested, let me know. I am a member of the Math Orientation committee. I'll be the one with the camera by my side. There will be a board with everyone's picture, so that will make it easier to look for me. If you're not sure about volunteering, come find me anyway: I'd like to meet you and answer any questions you may have.

I'll be on the 3rd floor of the Math and Computer building at 9 a.m. on Tuesday Set 6. as well as being at all the Orientation events, so you shouldn't have trouble finding me. Don't hesitate to come say hello.

I'm looking forward to seeing you during Orientation and during the term in the Math Society office. See you in September!

Darryl Ricker—Pres. Spring 1988

Howdy! This is your official welcome to the Math Faculty from the Math Society, the group of students that represents your concerns as Math students. This group makes decisions regarding: social events, students services, academic policies, and so on. Of course, the social events are of interest to most of you and include: your orientation, trips to Oktoberfest (Kitchener-Waterloo's famous celebration), concerts, trips to sports events, graduation festivities and more.

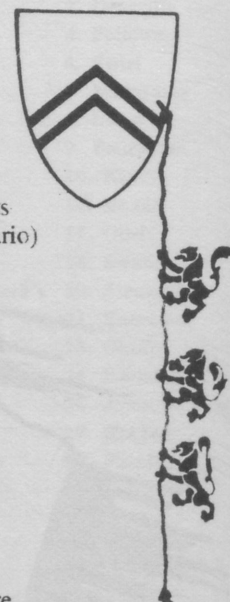
It takes no special qualifications to become involved in MathSoc, except a bit of enthusiasm. In return, the rewards are many: you can find out what's happening in the faculty (easing your transition into first year), meet new people (easing your transition into first year), and make Waterloo a better place for everyone else (easing other people's transition into first year). We always have openings for class representatives, office workers, social event workers, and even executive positions on the MathSoc council.

If we've aroused your interest, here's what to do: During frosh week, ask one of the orientation leaders how to become involved or come to our offices (MC 3038 and MC 3039) early in the term and tell us you want to help out.

It's important to make that initial effort; after that you'll be glad you did. You only get out of Waterloo what you put into it. See you in September!

Hierarchy of Life

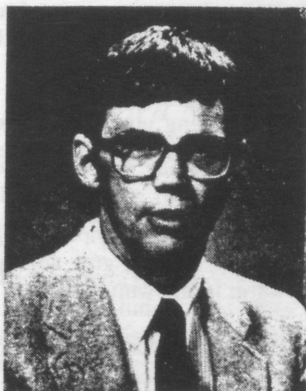
Mathies
The Natural Log/The Pink Tie δ
C+D
mathNEWS
Coke Classic
Canadian Beer
MathSoc
Bombshelter
Club 750 (a.k.a. Fed Hall)
Math Frosh
The Far Side
Double Chocolate Doughnuts
Jolt Cola (not available in Ontario)
SCOOPS
HP Calculators
Cinema Gratis
 π
8:30 classes
Other Frosh
Artsies
American Beer
 η
 $u(t)$
TA's
Campus Sculptures
The William G. Davis Centre
High school down the road (WLU)
New Coke
 ξ
Dept. of Co-operative Education and Career Services
Village "Food"
IBM
Needless Hell
Keeners
Imprint (Imp'tint)
UWO (Western)
Engineers
The P-word
EngSoc
The Ridgid Tool
Hierarchies of things



Did You Know...

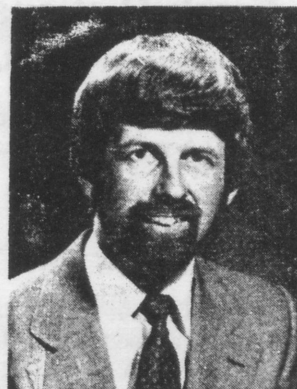
Did You Know...
(a.k.a. The UW 87-88 Undergrad Calendar)

- 1) ... the Imprint "is dedicated to the intellectual analysis and coverage of the news and issues of the day."
- 2) ... the whole rest of the world thinks a dot means the end of a sentence, while we know it represents a workterm.
- 3) ... that you can participate in the IberoAmerican Studies Option no matter what faculty you're in. Can you handle the concept?
- 4) ... Newfoundland, Hong Kong, India, and Central and South America are the only regions listed from where you already have to have completed at least one year of university to gain admission to UW. (are we good or what?)
- 5) ... if you are good, the Senate of the University could confer an honorary Doctor of Divinity Degree on you.
- 6) ... the faculty of Mathematics has 9 miscellaneous policies covering 7 areas. More than any other faculty; actually about 9 more.
- 7) ... if you open the calendar exactly in the middle you can read all about your favourite faculty; no, not Science.
- 8) ... there were seven Rec courses not offered in 87/88! That meant only 56 to choose from!



Jim G. Kalbfleisch
Dean of Mathematics

From The Faculty



Peter Brillinger
Director, Undergraduate Affairs

Once again I have been invited by the editors of **mathNEWS** to provide the Dean's greeting to this year's freshman class for the special Orientation Issue of **mathNEWS**. I want to welcome you to the Faculty of Mathematics and wish you well on the scholastic achievements and personal adventures that await you as you initiate and progress through your undergraduate career.

You are a member of a class which will benefit from a number of changes going on in the Faculty of Mathematics. Among them are the reduction in the number of course credits required for the BMath degree, the inclusion of *scheduled* Computer Science labs concomitant with the revision of course material for the first year Computer Science courses, and the new developments in the course content of the first and second year calculus and algebra course sequences.

mathNEWS is an excellent vehicle for you to receive information and offer your opinion about student life in the Faculty, but I also want you to know that there is a Faculty Student Liaison Committee through which you can channel your concerns by informing representatives from the Math Society of your interest in specific student issues.

While your home base will be the Faculty of Mathematics, and you will primarily be travelling across that part of the campus closest to the Math and Computer building with occasional forays to the Davis Centre, I would recommend that you expand your horizons to include other activities and exposure to academic material offered in the other faculties across campus. The campus has much to offer in terms of both social and academic activities, and you should endeavour to involve yourself in the larger community.

I hope you will have success in your academic achievements and pleasure in your time here as a student in the Faculty of Mathematics.

J.G. Kalbfleisch
Dean of Mathematics



As Director of Undergraduate Affairs in the Faculty of Mathematics, I would like to extend a warm welcome as you embark on your freshman year at the University of Waterloo. We are all fully aware that your first few weeks on campus can be rather hectic ones as you adjust to a totally new, and sometimes intimidating, environment. I hope that you will take advantage of every opportunity to make things as pleasant as possible for yourself.

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 assist you. However, with so many students, the onus is on you to make new friends, contact faculty members for assistance, and become involved in campus life.

The purpose of Orientation is to help you get started on the right foot in becoming a new member of the University community. The numerous activities and events provide ample opportunity to familiarise yourself with the various facilities on campus and to initiate new contacts with fellow students, some of which may well evolve into life-long friendships. Of the numerous activities planned for you, there are two in particular that I would like to draw to your attention and encourage your participation.

OPERATION MATHSTART, scheduled to begin on Tuesday, September 6, is intended to assist you in coping with registration and scheduling problems that often face new students. Even if you haven't encountered such problems, the MATHSTART centre is also a good place to meet other students and faculty members in an informal atmosphere.

MATH DAY, scheduled on Wednesday, September 7, is jointly sponsored by the Faculty of Mathematics and MathSoc. The faculty part of this day-long program includes general-interest sessions, specific subject-area sessions, an orientation session for co-op students and a barbecue, followed by the English Language Proficiency Examination. MathSoc, in addition to co-sponsoring the barbecue, has also planned a variety of other fun activities throughout the day.

Further information about OPERATION MATHSTART and MATH DAY, and the many other orientation activities available, can be found in your Orientation Package. This package contains all kinds of useful information, and I hope that you take the time to read through this material with considerable care.

Once Orientation week is over and classes begin, the amount of work facing you in the next few months will probably be 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 pursuits. 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 Brillinger
Director, Undergraduate Affairs
Faculty of Mathematics

The Frosh Dictionary

A list of terms you may wonder about

Arts Library (Dana Porter): The main campus library, the big sugar cube at the centre of campus. According to legend, it's slowly sinking due to the weight of its books.

Bombshelter: The original campus pub and party place, a great alternative to Club 750 (q.v.), serves pizza for lunch.

C+D: The MathSoc Coffee and Donut shop, a food bonanza full of ice cream, caffeine and pastries at good prices. Located in the C+D lounge (cleverly enough) in the south end of the third floor of MC. Just follow the smell of coffee and bagels.

Campus Centre (CC): Student building between MC and the PAC. Houses SCOOPS and the turnkeys, the Bombshelter and the Wild Duck Cafe.

Cinema Gratis: A variety of eclectic and popular celluloid is shown for free (hence Gratis) on Wednesday nights in the CC. Good fun, and you can't beat the price.

Club 750: Alias Fed Hall, the biggest student pub in Canada. Serves lunch during the day, and parties at night. Worth getting out to see. It's noisy, but you'll love it.

Co-op Student: A gypsy with books.

DavisWorld : Like the Eaton Centre with computers, DavisWorld is an adventure in colour, a twisty maze of tiny rooms, no two alike.

Endless Loop: See Loop, Endless.

Flaccid Tool: Mathie name for EngSoc accessory (batteries not included). Some disassembly required. Only useful to Mathies with great big beer bottles.

Feds: The Federation of Students, a campus-wide "organisation" that aims (and often misses) to represent the student body. Has useful services like SCOOPS and a cheap bus to Toronto on Fridays.

Fed Hall Bouncers: Big like tree, smart like rock.

Fred the Math Bunny: Semi-official pseudo-mascot of MathSoc. Easily recognizable as a burnt-out keener bashing pink bunny adorning the covers of mathNEWS.

Guelph: The sound a dog makes as it tosses its cookies.

Imp'tint (Imprint): Preprinted birdcage liner, shipped in bulk on Fridays.

Loop, Endless: See Endless Loop.

Math: Your new Faculty, a great place for learning, meeting new friends and generally enjoying a productive and all-too-brief university career.

mathNEWS: What you're reading now. Math's student newspaper, a bastion of humour, bad puns, a little math, and even less news. Run by student volunteers.

MC: Home. The Mathematics and Computer building, located at the north centre part of campus. It's big, grey and cubic. A block of ice in the summer, toasty warm in the winter.

MC 3038: MathSoc's office, the place to go for social information, photocopies, and copies of old midterm exams.

Natural Log: The official MathSoc MathScot, the symbol of our society, essentially a laminated log but we love it anyway.

Needless Hell: (also Needles Hall) a place (and a thing) all co-ops pass through.

Oxymoron: Any set of words with a self-contradictory meaning. Classics include Postal Service, Good Morning, Civil Engineer, and Village Food.

Pink Tie ξ : The other MathSoc MathScot, a symbol also used by the Faculty. Our visible symbol of pride (would you rather wear a twig?).

Recursion: See Recursion.

Rhursday: Day between Wednesday and Friday at UW.

Security: Have flashlight, will travel.

Village Food: Illustrates the difference between well cooked and cooked well. Food fit for a king (Here, King! Here, boy!).

Village One: The closer on-campus residence, laid out like a medium security pen, mostly single rooms.

Village Zoo: The other on-campus residence, deserving of its name, mostly double rooms.

Village Three: (archaic) Sunnydale, a quaint student ghetto north of campus. (current) The new University-owned townhouses on the north part of the campus, a.k.a. Columbia Lake Townhouses.

Watpubs: mobile Bombshelters, pubs held in various Canadian cities once a week for co-op students on work term and UW alumni.

Wild Duck Cafe: The CC dining emporium. See Guelph.

WLU: The high school down the road (Wilfrid Laurier University).



Math Faculty Programs

Applied Math

Applied mathematics is the study of mathematical methods for solving physical problems. While this may sound a lot like engineering, there is a crucial difference. Engineering concerns itself with the actual physical problems and seeks to find quantitative answers to those problems: applied mathematics is concerned with the mathematics involved in finding those solutions and seeks to further knowledge about the mathematics, or to discover new methods of solution. An applied mathematician must be able to 'stand back' from his solution and see where it fits in the universe of mathematics. Applied mathematics is thus a bridge between the mathematical world and the physical world. Despite the difference, there are strong ties between applied mathematics and the world of engineering and the natural sciences, and much overlap. Many graduates of the applied math program go on to work in engineering or the natural sciences, especially in the theoretical aspects.

Applied math is full of differential equations: one may even say that applied mathematicians are partial to differential equations (though perhaps not all, Bev). If you don't know what a differential equation is, don't worry. You will see more than enough differential equations in your applied math courses to learn what they're all about, and see how useful they are in describing physical phenomena.

If you find the physical world to be an interesting place, and like to look at it from a mathematical perspective, then applied mathematics may be the program for you.

Actuarial Science

An actuary? Huh? What's that? Don't be upset if you don't know - most people don't, and presumably you're reading this to find out. Actuarial science is a rarity, being both a mathematical field of research and a valuable way of gaining employment.

So what does it involve? The role of the actuary is presumably to predict financial gain and loss positions several years into the future. As a result, the actuarial science program studies, in some depth, probability theory and theory of interest. This is the sort of analysis that applies well to insurance situations. (How long will they live? How much will we have to pay them?) So you find almost all actuaries working for insurance companies or private consulting firms. They play an important role in pricing of products, as well as determining the valuation of financial reserves.

"Did you mention something about jobs?" As a matter of fact, yes. Actuaries always have, and will continue to be in demand. Employers certainly appreciate the scarcity of actuaries, and are quite willing to compensate them appropriately. But, there has to be a catch, right? Well, in order to qualify as an actuary, the Society of Actuaries has deemed that you must pass what was formerly ten large exams, and now several smaller exams. But a really keen student can pass up to half of them by graduation.

Is the course really hard? Well, maybe not so much hard as it is unique. It requires a totally different application of the mathematical concepts learned here at U(W). But it is interesting and somewhat practical. Give it a try, you'll be glad you did when you graduate.

Business Option

The Business Option combines courses from both UW and Wilfrid Laurier University. It provides the student with an excellent knowledge of business practices and policies to complement his or her BMath degree. Normally one business course per term is taken at WLU, with the remaining courses at UW. Be advised that if you are at all considering this option, your first year course selection *should* include BUS 121/122, ACC 121/122 and ECON 101/102.

Combinatorics and Optimisation

Explaining what C&O is all about is quite an undertaking. Your best bet when trying to explain it to your parents is "It's just math, mom." However, we can't get away that easily. Waterloo has the first C&O department in the world. C&O is certainly more than 'just' math.

Combinatorics is a diverse field, involving many subject areas. The first two you will encounter (in C&O 230) will be graph theory and enumeration. Graph theory deals with ways to solve problems through pictorial methods. Transportation problems, organisational models, computer science algorithms and more can be studied through graph theory. Enumeration is counting theory, dealing with ways to combine items or form patterns, from something as mundane as making change to highly esoteric theories.

Optimisation is the modelling of problems, subject to boundaries and constraints, to yield the best possible solution. The practical upshot of this is that optimisation methods, such as linear programming, can be used to predict and account for bridge stresses, to optimize factory floor space and to produce 'best fit' solutions to many complex problems with large numbers of variables.

C&O has long been a special part of Waterloo. The discipline has only developed fully in the last hundred years, and a large part of the work has been carried out by UW faculty. The many areas for research and rapidly broadening horizons of C&O make it one of math's most interesting departments. We may not know how to explain it, but we're sure it can be well worth investigating!

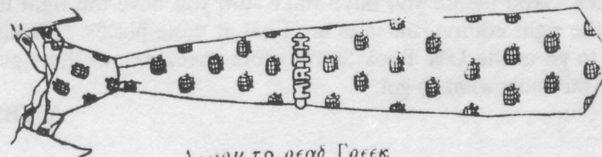
Pure Math

"A Pure Mathematician is someone who has his feet planted firmly in the air."

This is a popular view of what pure mathematics is, and it is not so far from the truth. As opposed to the engineer, whose interest in mathematics is limited to what is useful to him to build bridges or airplanes, the pure mathematician enjoys mathematics for its own sake; applications are somebody else's concern. Nevertheless, this puttering about with theorems and conjectures is rarely useless. A famous example is G.H. Hardy's claim that the number theory he was developing was totally impractical for anything other than itself; yet today this provides the foundation for unbreakable ciphers. The engineer evaluates integrals with gay abandon, but it is pure mathematics that proves his methods work (in fact even that the concept of 'integral' makes sense!).

Consider these questions: Given a hairy billiard ball, is it possible to comb all the hair so it lies flat everywhere? How can the concept of prime numbers be generalised from the integers to polynomials, and what analogies can be made between the two? Can every even number be expressed as the sum of two primes? If these questions pique your curiosity, Pure Math is where you'll find the answers. (Well, nobody knows for sure about the last one (yet)). The sheer elegance of mathematics shines at its best here, unencumbered (although often inspired) by the "real world." And while you may consider a theorem to be ephemeral compared to the Brooklyn Bridge, remember that the theorem's truth will far outlast the bridge's lifespan.

continued on page 6



Ασπύ το πρᾶδ Γρεκ

continued from page 5

Teaching Option

One of the biggest complaints I hear from students is that whenever they tell a layman that they are in Math, that person asks if they want to be a teacher. Well, some of us actually do want to teach when we graduate, and the Mathematics Teaching Option is the best way to earn your degree and teaching certificate. The program begins in 2A when you go through a set of interviews before you are accepted to the Option. If you are accepted, your stream changes drastically, and you flip between 4 and 8 stream people constantly. Also, you lose a work term but you gain a 4 month term at Althouse Teacher's College at the University of Western Ontario. The reason for the reduced time at teacher's college is that the last three work terms are spent in a high school (or possibly a senior public school) classroom, and by the last teaching work term most students have a full teaching timetable. In other words, you will have 12 months classroom experience and a Math degree. Boards of Education will be knocking down your door to hire you.

The best part about Teaching Option: You get up to 4 Summer School terms.

The worst part about Teaching Option: The salaries are incredibly bad (worse than CA's). If you want money go into Actuarial Science. Least known fact: You can graduate from Teaching Option by completing any other Undergraduate Major requirements instead of the Teaching program.

The Acquisition of Textbooks

There are basically three ways one can purchase textbooks: from the UW Book Store, from the Used Textbook Store, and through private arrangements. The UW Book Store is located in South Campus Hall, which overlooks the southern entrance of the campus. All textbooks for your courses should be available there. As well, a list of required and recommended textbooks is maintained there. However, you can get a better price by buying used textbooks, and there is a high probability that you will wait an extremely long time in the line-up to get in. The Book Store is a small place for the volume it has to handle in the opening weeks of the term. Here are some tips for shopping at the Book Store.

First of all, try to shop as early as possible, to be sure you get your textbooks. The Book Store tries to keep sufficient supplies, but it sometimes runs out of textbooks. Keep all of your receipts so that you can get a full refund if you drop a course or if you discover that you've bought the wrong book. There are two types of cashiers: those who handle cash only and those who handle cheque and credit card transactions. The line-ups for the cash cashiers tends to move more quickly than the other line-ups. (more line-ups, sigh!) Finally, the Book Store is partitioned into two areas during the first couple of weeks. Textbooks for math, science and engineering type courses are available on the lower floor of the Book Store. The entrance to this section is located at the back of the Book Store and can be easily identified by the line-up in front of it. The upper floor contains textbooks for the other (i.e. arts) courses, as well as stationery supplies, with access via the main entrance.

Should you wish to save some money on textbooks, there are two options you might consider. One is to watch the bulletin boards for people advertising used textbooks. The other is to check out the Used Book Store, located in the basement of the Campus Centre. However, you should not expect to get all of your required textbooks from these sources. And before you buy, make sure you have the right textbook and the right edition—all sales are final at these places. It's not a bad idea to go to the UW Book Store before checking out these places, so that you know what to get.

CYBERman

The Pink Tie 8

Waterloo has lead the world (or at least Canada) in many things. We can boast about leading the fashion world, too. Many people have taken to wearing pink ties as part of their everyday attire. Waterloo started this fashion trend. You see, the Pink Tie is the (un)official mascot of the University of Waterloo Mathematics Society.

How did Waterloo start this trend? As the story goes (passed down from grads to frosh over the decades), there once was a particular professor of mathematics who loved to wear outlandish gaudily-coloured ties. One of these ties was mostly pink with strange lines on it. This particular professor also happened to be the founding dean of the fledgling Faculty of Mathematics, lending some importance to his attire.

Mathematics students, being the unconventional bunch they usually are (and we hope you are no different), seized the wonderful opportunity for being irreverent but non-destructive and chose a tie as their official symbol, and pink as its official colour.

A near-original Pink Tie is on display on the fifth floor of the Math and Computer building in a display case outside the Math Undergraduate Office.

During the construction of the Mathematics and Computer building in November 1967, some of the aforementioned math students decided that the new building was a monstrosity and could use some decoration. (Some people still say that. Then they go and design the Davis Centre—it's even worse!) Late one Sunday night a few weeks later, a handful of brave mathies found their way on to the roof of the brand new building. On Monday morning the campus awoke to see an 85-foot Pink Tie hanging from the roof!

MathSoc adopted the tie, and inherited the dry-cleaning bills, until the tie was stolen for a final time and irreversibly desecrated by heathen engineering students. A second Pink Tie was commissioned and served faithfully until September 1986, when it was paint-bombed. (Some people have no sense of decorum.) This year you will see another Pink Tie hanging from the Math building when you arrive for Orientation Week.

The Pink Tie is a symbol of the Faculty of Mathematics and the Math Orientation Committee. mathNEWS has adopted the Pink Tie as the symbol of all things good and mathematic. (MathSoc's official symbol is the Natural Log, but the Tie perseveres regardless!) As the legend of the Pink Tie lives on, it is commemorated in the fashionable item of clothing you wear as a Waterloo Math frosh. Wear the Pink Tie with pride.

Student Vocational Advisors

The Student Vocational Advisor (SVA) program provides students with answers and advice to questions and concerns they may have with career planning and job search. The SVA program provides students with a readily and easily approachable peer resource to help them with all aspects of the job search, whether the job is a summer job, co-op position, or full-time career.

SVA's are students trained in all areas of career planning and job search. SVA's are volunteer students who work closely with Career Services. SVA's maintain weekly office hours within the faculties of Mathematics, Science, Arts, Environmental Studies, and Human Kinetics and Liesure Studies. Office locations and hours can be obtained from Career Services in Needles Hall, or from SVA posters located around campus at the beginning of the fall and winter terms. Students seeking help should drop into and SVA's office during week-ly hours.

The SVA program can help students to identify skills and interests, write effective resumes, develop successful interview skills, and plan their career and job search. Visit an SVA and make an investment in your future.

8
dwarf

Fees (and other four-letter words)

When you first looked at your fee statement, you probably noticed several things. You noticed that it was white and off-green. You noticed that it had your name printed on it. Then you noticed the line that said "Before Sep 08 Please Pay This Amount" and the number beside it: \$1080.66 (less if you're in regular study). When you recovered, you probably saw the many smaller fees that make up this whopping total, and wondered what they all were, and more importantly if you really had to pay them all. Well, you don't actually have to pay them all ...

Fees You Have To Pay

Tuition: This is the basic tuition Fee, which covers the basic costs of the courses you'll take for the next four months. Individual courses may have other costs associated (such as lab breakage cards for chemistry labs), which will be assessed later, but most course costs are covered by this fee.

Co-op Fee: All Co-op students pay this fee to cover the costs the university incurs in handling the co-op program. The salaries of co-ordinators (who are supposed to find jobs for students, although it often seems to be the other way around), bookkeeping costs and other items are paid for by this fee. This fee must be paid by everyone in co-op, regardless of whether or not you use co-op's services.

Health Insurance: This insures both you and the university. The health insurance you buy helps cover insurance costs for the university, and you get a discount when buying prescription drugs (even on work terms) and other things. For more details, go over to Health Services and pick up their brochure.

Athletic Fee: This fee funds our intercollegiate teams (football, basketball, volleyball, swimming, etc.) in their support and operation, as well as tournaments and meets.

Recreation Facil: This fee helps to pay off the arena that was built awhile back on the north campus, up across Columbia Street.

Federation Hall: This fee goes toward paying off the very new student pub located on campus near Village One.

Fees That You Can Get Back Later

All of these remaining fees can be refunded by applying to the appropriate organisations within three weeks of the start of lectures. Most of these fees support interesting and worthwhile organisations, who are run by and for students and would love to have you join them and help them out.

Waterloo P.I.R.G.: The Waterloo Public Interest Research Group, WPIRG, is a student funded public affairs group which has studied such things as nuclear waste and acid rain, and brought in speakers such as Ralph Nader.

Radio Waterloo: CKMS (in stereo) is the student run radio station here on campus, providing a wide variety of programming over a range of musical styles and subject matter.

Fed. of Students: All undergraduates at UW can belong to our Federation of Students, the "Feds." They provide lots of services, like Scoops, two pubs, legal services, a word processing service, weekend films (Fed Flicks) and more.

Student Society: This is your Math Society fee. MathSoc funds various services and events for mathies. See the article elsewhere in this issue for details.

Imprint: "Imprint" is a campus "newspaper" published every Friday. The quality of the paper is directly attributable to those working on it, and the quality goes up and down, but it often contains information of immediate relevance to the student population.

Fees for Fall 1988		
Fee	Amount	Notes
Must Pay these ...		
Tuition	\$705.50	everyone pays
Co-op Fee	269.00	co-ops only pay
Health Insurance	15.95	regular students
	29.91	co-op students
Athletic Fee	25.25	school teams
Recreation Facil	10.00	
Federation Hall	7.50	
Refundable fees		
Waterloo P.I.R.G.	\$3.00	
Radio Waterloo	4.00	
Fed. of students	18.50	
Math Society	5.00	a good deal
Imprint	3.00	

Getting Money

University is a very expensive habit to get into (\$1080 for most just to come here). Even in the co-op program, some students find it hard to make ends meet. But do not fear, since there are some sources of income most students can tap into to help them out.

The Ontario Student Assistance Program, better known as OSAP is the greatest of these sources. All it takes is for you to get the proper forms from the Registrar's Office, fill them out, and send them in by September 30. That's it. It doesn't cost a cent (okay, maybe 37c postage) and may bring in a grant or an interest free loan of untold magnitude. At worst, you may receive nothing but the joy of knowing you tried. Just remember, you can only apply for the first eight terms at school, so don't plan to use it going after your Master's degree.

OSAP isn't the only way to get money, though. There are numerous scholarships and bursaries listed in your Undergraduate Calendar that are often forgotten about. Take a look and see if you can qualify for any. Again, all it takes is a little effort and some luck.

If OSAP and the other prizes don't bring in enough for your lifestyle, there is always the opportunity to get a job. This one is particularly nasty since it will take time out of your study and leisure opportunities, but it is sometimes necessary. Jobs on campus include cashiers at the societies' Coffee and Donuts shop, designing and/or posting posters for the Feds, working in the arcade in the Campus Centre, selling ice cream at SCOOPS, working at Fed Hall, or typing for WORDS. Off-campus, there are numerous jobs in stores and restaurants that are customarily filled by students.

Again, a warning! Don't let any job interfere with your school work. That's why you are here, remember. Hopefully, mommy and daddy can come through with some dough before you have to fail out to earn your way through.

John Herbert

What Is This Thing?!?

This is mathNEWS!!

Hey all you frosh out there in orientation-land! You are now holding in your hands what will become to you your best friend on Friday mornings. **mathNEWS** is the student funded, volunteer run math society publication produced for you, the mathies of U(W). What you have in your hands right now is our special annual Frosh Issue, chock full of useful information and humour to help you get used to Waterloo before you even get here. During the term, piles of **mathNEWS** will spontaneously appear around the MC approximately every other Friday. Each will contain lots of humour and MathSoc information, a little bit of news, and even less math.

To keep **mathNEWS** going, we need lots of people to help out on production nights (usually the Monday before an issue comes out). Staffers are needed to write articles, type them in, draw cartoons and cover illustrations, proofread things, and lay the articles out. Experience is not a pre-requisite! We'll teach you everything you'll need to know about Unix (eek!), a typesetting language, layout techniques, and how not to slice yourself to ribbons with an X-Acto knife. On production nights we get pizza for all the staffers. All in all it's a pretty good time for the few hours every other week you put into it.

If you're interested in becoming part of **mathNEWS**, there will be an organisational meeting sometime during the first week of classes where we'll elect a new editor (hopefully me) and discuss what we're going to try to accomplish this term. We need all the help we can get (or at least I do) so come on out to the meeting or drop us a line at the **mathNEWS** office, MC3041, just down the hall from MathSoc. **mathNEWS** is a great alternative to studying your buns off on a Monday night, so give us a try. 'Nuff said.

Tom Vandek...

Getting Around

Local, Private, Four Wheels

For those driving to school from off-campus, go to security the *first day* you arrive if you hope to get a parking space. If you don't pay the fee to have a spot, get used to paying 50¢ or 75¢ for daily parking, and remember to have some quarters in the car at all times. If you try to park illegally in loading docks or on the road, you generally have a half hour grace before you get the \$25 fine, then another hour before your car is towed.

Local, Public

Public transit in this city is run by Kitchener Transit, often referred to as Kitchener Chance-it. This organisation runs several routes in and about K-W, including UW. It costs \$1.00 to ride the bus (bills are frowned upon, so this is a good place to use the new singloon), but monthly passes are available if you plan to use the bus frequently.

For a list of useful bus routes you can head downtown to the head office or check out the display in the Campus Centre. The transit information number is 885-7373. You can use the "Telerider" service, too. Just call the number listed on the desired bus stop to find out when the next bus leaves from there.

The Federation of Students at UW have been running something called The Safety Van, which runs through most of the student residential areas. This service is designed to encourage women to stay off dark streets and pathways during the evenings; hence, the van is primarily for female students. This is a free service.

Inter-City

Aside from the usual VIA Rail and Grey Coach services, the Federation of Students runs a cheap express bus to Toronto on Fridays and from Toronto on Sundays. The new prices haven't been announced, but last year it cost \$5.50 one way and \$10.00 return.

MathSoc

What is MathSoc?

MathSoc is the student society to which every math student belongs. The society is active in all areas of math student life: from the faculty level right on down to the frosh. MathSoc uses your \$5.00 fee to provide all kinds of services and events for its members.

Where can I find MathSoc?

The MathSoc office (often referred to as "the office") is located in room MC3038 across the lobby from the C+D. This small room is the hub of all MathSoc activities as well as the best place to go when you have any kind of problem. If we don't know the answer, chances are we know someone who does.

What does MathSoc do?

MathSoc provides for its members all kinds of services. These include: office supplies, a telephone, change (\$\$), a lost & found, a mail drop, a first aid kit, copies of old midterms and exams, photocopiers at a nickel a pop, and locker sign-ups at the beginning of the term. Across the lobby there's the comfy lounge and the C+D where you can get all kinds of food and drink at very reasonable prices. MathSoc also provides, for a low price, buttons, rulers, pink tie & pins, and T-shirts.

Along with all the services, MathSoc also organises and runs lots of social events throughout the term. These range from bands at Club 750 to Blue Jays road trips to Oktoberfest tickets to BBQ's and more. All of these events are subsidised somewhat by your fees and so are considerably cheaper than you might expect.

Who does all of this stuff?

In case you haven't already noticed, there's an awful lot going on in MathSoc. As you might guess, lots of people are needed to staff the office and help out with social events. These people, all volunteers from the society, are called (cleverly enough) the office workers. Office workers spend an hour or more a week just sitting in the office and acting as a well of information and assistance to anyone who comes in. You don't have to know much to be an office worker, just where the staplers are and who's next in the chain of command if you can't answer somebody's question.

Who's really in charge?

MathSoc itself is run by the MathSoc Council. This council consists of three groups: the elected executive, the appointed executive, and the class reps. The elected executive, the President, Vice-President, and Treasurer are elected/acclaimed to office every so often and are the ones ultimately in charge of what MathSoc does. The appointed executive consists of the Social Director, Internal Rep, External Rep, Office Manager, Publicity Director, Council Secretary, Athletics Director, and MGC Chairman. Class reps are elected by each class (1st year regular, 3rd year co-op, etc.) at the beginning of each year. Each of these positions holds a varying degree of responsibility and commitment.

Where do I sign up?

If you're interested in becoming a part of this campus' most exciting and dynamic student society, MathSoc is for you. You can get involved to any degree you want, from office worker to elected council member. The demands on your time aren't bad, and you'll meet a whole bunch of people who are as interested as you in having the best time possible while at good ol' U(W).

CS or Not CS

"I know software verification sounds a lot like Computer Science, but I don't want a Computer Science major. I want someone who can think. I want a math major."

—an anonymous corporate recruiter

Now that you've been accepted into Math, you may think your decisions are over, but they've just begun. If you haven't already done so, you'll soon have to choose a major. One of the most popular choices is Computer Science. This department usually has fewer spaces than applicants. Typically, of the roughly 800 Math Frosh (this means you) about to enter the University of Waterloo's Faculty of Mathematics, fully half intend to enter Computer Science in their second year. Of these, space permits about 300 to be admitted, of whom some 200 graduate with a Bachelor of Mathematics degree. Why is Computer Science so popular that more people want into the program than there is space? What about the other departments?

For many people, computers were fun and programming came easily in high school. Others feel that in an increasingly technological society, it is necessary—even vital—to become part of the "computer revolution." Still others look to CS because of the apparent glamour and the lucrative job field.

Mathematics, on the other hand, is a labour of love. There is no apparent glamour for a mathematician. People study mathematics because they enjoy studying it, working with it, thinking about it. Many who enter Math at Waterloo without the intention of entering CS are steered here by advice from older friends or enlightened teachers.

What does it mean, both for Computer Science majors and for other mathies, to have Computer Science and other Mathematics courses so strongly interrelated?

Since the theory of computing is mathematical in nature, CS students take mathematics courses. If they're good at math, they'll be good at the analysis and problem solving needed for higher level computer science jobs, like Systems Analyst. CS majors at UW are not taught specifically to program, but how to solve problems, and what tools to apply.

In the first two years of study, most honours programs have a basic similarity. By the end of second year, all mathies know everything that they need to know about programming. Like all Mathies, CS students will be exposed to calculus, algebra, statistics and subjects of that ilk. The required Math courses in CS programs are intended to provide a basic grasp of the tools and methods of each discipline. Not only does this provide a future analyst with a solid background, but give CS majors who decide to leave the program exposure to the wide range of mathematical fields available.

By third year, most programs have split radically. CS majors may opt at this point for a less mathematically intensive program (or more so, if they prefer.) All Math programs become more flexible after the first couple of years, allowing for specialisation and interest-oriented study.

Every Math student benefits from CS courses through the breadth of tools they make available for study and research. With basic computer knowledge common to their classes, professors can employ the computer as a tool to let students apply the theories they have been studying. More realistic problems can be explored without using contrived examples where every step has an integer result. One does not have to be a CS major at UW to learn how to use computers productively.

The Computer Science program at UW is intended to produce analysts, not merely programmers. People who only want to learn to program should *not* be in a CS major degree at UW, but in CS at a community college. These institutions provide solid programming skills, but few of the tools needed to progress beyond coding jobs. The many Math courses that UW requires are not required there. A more in-depth education aimed at a DP management job or a senior programmer level can be obtained at places like UWO. Beyond that, it is often the Waterloo trained analysts and problem solvers who progress, for whom coding is a tool used to accomplish a task.

Professionally, Waterloo Mathies (and even engineers) work well together. Thanks to the interrelated programs, CS grads can work with actuaries and statisticians and applied mathematicians with ease. This ability is denied many others in the CS field.

That's why CS and Math are so closely tied, and why CS majors must take the common Math core courses. UW wants to produce thinkers, not merely doers. Waterloo CS grads do not stay coders for long, but move into the thought-work areas of business as computer science applies to them.

At Waterloo you will be exposed to all the options of mathematics. Computer Science is an exciting part, but not the only area of interest. After all, mathematics has been around for millenia. The classic outsider view of mathematics as boring is far from accurate. The knowledge that there is always more to discover makes it exciting for both the dedicated researchers and the professionals for whom mathematics is a toolkit. Now and in the foreseeable future mathematicians will be developing the ideas that lead to discoveries in science, engineering and humanities—for mathematics is not just a science or technology, but a philosophy as well.

CS is certainly an excellent program here, but only one program among many, all of which are valuable and fun. Bear this in mind as you travel through your years here, and be open to new ideas. The Waterloo BMath is a document which signifies the bearer's ability to reason, to think as well as to do, and to program, no matter what discipline the major reflects.

Stuart L. Hodgins
W. Jim Jordan

Campus Media

The University of Waterloo, as one of Ontario's largest universities, has its share of on-campus media. The campus radio station is CKMS-FM 94.5, an alternative radio station which thrives on volunteer DJ's. If you thought CFNY was unpredictable, you've never heard CKMS.

The University also has a large selection of newspapers for your perusal. They're all free (once you take into account that some of them come from the fees that you pay), so unless you've refunded your MathSoc and Imp'rint fee, feel free to pick up a copy of any of these.

Imprint is the official student newspaper on campus. It is loaded with opinions, advertising, record reviews and some campus-type news. It appears late Friday morning at various places on campus.

The *Gazette* is the University administration's newspaper. This contains articles of interest to the University community, and takes a generally conservative or sceptical view of things, except when dealing with things that the administration is gung-ho about. The best part about the paper is the Notebook section with one-paragraph tidbits of things (watch for *mathNEWS* excerpts).

mathNEWS (what you're reading now) is funded by MathSoc and presents an interesting mix of information and humour in a magazine format. Unfortunately, resources prevent us from being a real magazine. *mathNEWS* comes out on alternate Fridays, usually before 8:30 classes, so you can pick it up and read it in calculus. People have called us the best paper on campus. Find out why.

The Engineering Society (boo, hiss) produces a monthly newspaper called the *Iron Warrior*. This is a generally serious paper containing articles of interest to engineering students and math students taking engineering electives. They deliver a bundle to the math building whenever they come out.

The Prof Control Panel

Mark II

The University of Waterloo will be installing the *new* Prof Control Panel in various desks throughout the university on a trial basis in order to try to improve class attendances. Here is a brief excerpt from the operator's manual accompanying each panel.

Prof Eject Button: For that boring part of the lecture when you just want to send the prof through the roof.

Prof Nuke Button: Similar to the Eject Button but with a more dramatic mushroom cloud effect (usually takes out the first two rows of keeners as well). Radiation suit not included.

Prof Zapper: A quick charge of 500 000 volts can easily tell a prof to get on with the lecture.

Prof Volume: Allows you to sit in the front without shattering your eardrums, or in the back and still hear the prof.

Prof Rewind: Time warp back to an earlier point in the lecture.

Prof Fast Forward: Comes in handy when the class is only halfway through and you're late for dinner.

Prof Brightness Control: To reduce the effect of those fluorescent Friday ties.

Prof Record: Lets you (re)view the lecture in the comfort of your own home. The Panel automatically selects a premium or cheapo tape, based on the quality of the lecture.

Prof Stereo/Mono Switch: Changes professor's voice from a monotonic drone to a high-pitched whine with spurious glitches. If the prof is female, this switch has no effect.

Prof Noise Reduction: Eliminates extraneous proofs, redundant lemmas and useless anecdotes.

Prof Balance Control: Allows the student to adjust the lecture's theory vs. practise ratio.

Prof Language Select: Choose one of Chinese, Czech, Yugoslavian, Swahili, Esperanto or Pidgin English.

Prof Font Select: Choose from a gallery of blackboard fonts: Greek, Hebrew, Chinese, Bodoni, Old English or Cyrillic.

Prof Gear Selector: Choose 'D' for normal lecturing, 'L' for low-gear grinding through DE's, 'R' for "if and only if" proofs, or 'N' for catching your breath after an exhausting example.

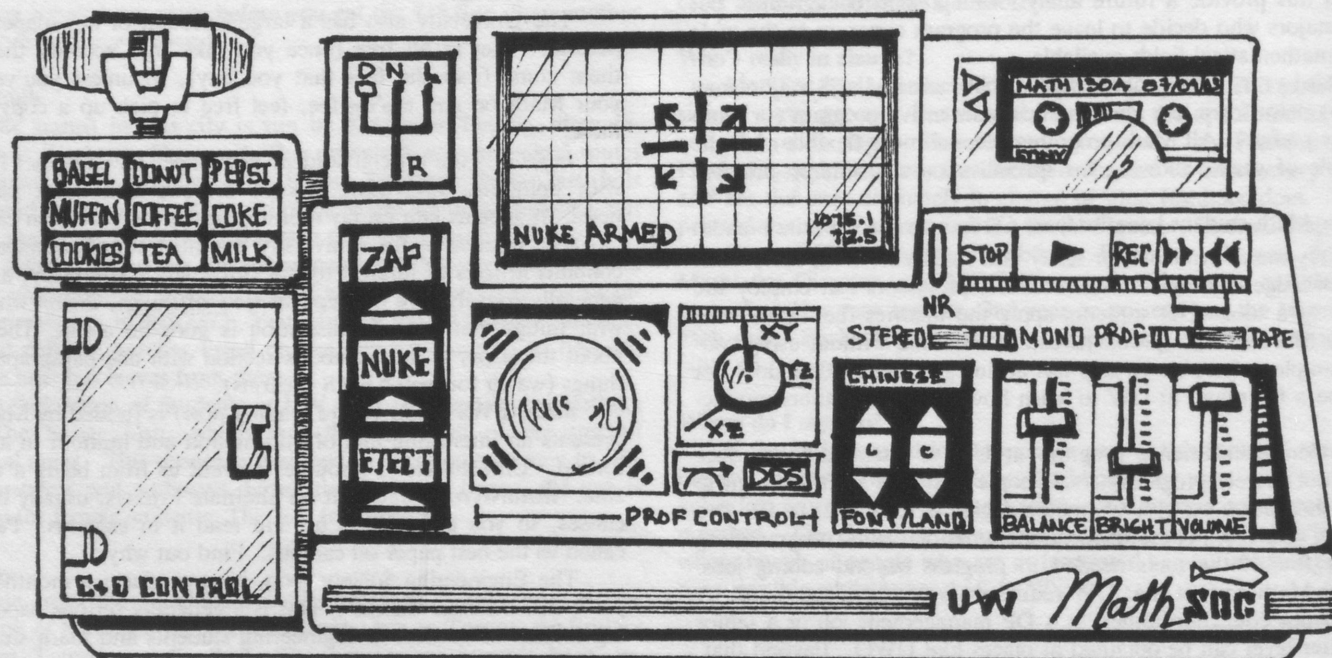
Prof Cruise Control: Set the most comfortable cruising speed for the lecture. (We advise setting the speed below the legal limit of 50 (boards per lecture, that is). Failure to do so will void the warranty.)

Prof Motion Trackball with Plane Control™: Move your prof around in 3-space with an ergonomically designed Trackball and continuously variable oblique Plane Control™. During rougher lectures, drive your prof up the wall; during better ones, help him reach that top blackboard in MC 2065.

Directional Derivative Switch: Used in conjunction with Trackball and Plane Control™ to send the prof off on a tangent.

C+D Control: Signal the C+D to beam in the beverage and snack of your choice.

Georg, Vainamoinen and Jordankovic



Coarse Selections

Since most of you don't really know what your courses are going to be like, we've decided to tell you what they were like as various mathNEWS staff members have experienced them. Core first year courses and oft-chosen electives are covered here. For information on other courses, talk to an upper-year student. That's another good excuse to make another friend at Waterloo.

ACC 101: Accounting for accountants; this course can be pretty hard. If you haven't high school accounting, find someone who has to help you. If you have, you'll still have to work for this one.

ACC 121/122: Accounting for non-accountants. Easy if you have taken accounting in high school. There are some new principles in managerial accounting. These are the non-specialist counterparts to ACC 101.

BUS 111/121: Taught at WLU, these courses teach you the basics about the business world (and the stock market!) Business courses are WLU's specialty, and these two are always well taught.

CHEM 123: Introductory Chemistry. Follows from Grade 13 concepts. Might get nasty towards the end of the term, but it can't hurt. You can take an optional quarter-credit lab with this course.

CHEM 124: This is an introductory course in organic chemistry. It is demanding and requires a lot of memorisation, but is quite interesting. There is also an optional quarter-credit lab for this course.

CS 131: This course introduces you to the basics of computer science covering topics such as correctness and efficiency of algorithms, structured programming, recursion, and data bases. The labs involve mostly programming in Pascal, some (ack) COBOL, and introductions to word-processing, spreadsheets, and data bases. The lectures are interesting and the labs are not difficult.

CS 132: The "new and improved" version of CS 140 follows CS 131 and will usually be taken in your 1B term. Topics include language syntax, machine language, compilers, linked list data structures, storage allocation schemes, and a bunch of numerical stuff (root finding, etc.). The languages Pascal and FORTRAN are used in the labs.

ECON 101/102: Slightly dry unless Larry Smith teaches, but beneficial. Easy to pass. Hard to ace. Lots of graphs, lots of reading (typical artsie course). Provides all the economics a non-major will ever need.

ENGL 109: English. For those of you that fail your ELPE's, it's practice for the next time. Little take home work, but lots of in-class essay writing.

FR 192 A/B: These courses are taught entirely in French and build upon Grade 13 oral, reading, and writing skills. They consist of three hours of lectures, a one hour conversation class and a one hour listening lab per week. If you are taking these courses, you must write the French Placement Test in September.

HIST 100: History of the World (not Mel Brooks' version.) 5000 years in three months. Interesting with some essay writing. Easy to pass.

MATH 130 A/B: Better known as calculus. You'll learn about derivatives, evaluation of integrals, differential equations and sequences of real numbers. If you can find one, a set of course notes by Professor Wainwright can be extremely useful (they may even be one of the recommended texts). *Author's note: I liked them so much I took both of them twice.*

MATH 134 A/B: These are the first year algebra courses. In MATH 134A you will learn classical algebra, a topic that began in ancient Greece. MATH 134B follows from the Grade 13 material on matrix algebra.

MTHEL 100: An ornithological monstrosity (i.e. bird course.) It deals mostly with contract law but also gives some instruction in the laws of tort and the structure of courts. A great deal of memorising is required to obtain a good mark. There are no theorems, no proofs, just facts to know.

MUSIC 100: Introduction to Music. This is a music appreciation course so you get to listen to a lot of music. Practice quizzes help with the course studying. You may even get to do concert reviews, too.

PHIL 140: Introduction to Formal Logic. It's not so much Philosophy as Introductory Boolean Algebra. Generally easy for Mathies.

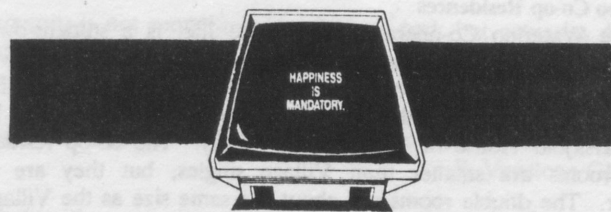
PHIL 145: Critical Thinking. This course teaches you how to analyse simple arguments for logical fallacies. It is interesting and not too difficult.

PHY 121/122: First part of course lulls you to complacency and the rest of the course totally blows you away. Don't take unless you have to or are a masochist.

PSYCH 101: Introduction to Psychology. Register early to get in. Lots of memorisation. Easy to pass.

SCI 205: The infamous 'Hi-Fi-Sci' course that teaches concepts about stereo systems. Multiple guess midterms and exams. Should boost your average, so save it for a later, difficult term.

SCI 238: Star Gazing, alias Introductory Astronomy. Learn more about the heavenly bodies. Basic math and formula plugging. A course with wings if there ever was one.



EdLines

Welcome to Math, and more specifically to mathNEWS. You are currently looking at our special Frosh Issue, produced once a year. What's a Frosh? You are. It's short for freshman (no gender implied.) As a Frosh, you're bound to have many questions about what life will be like at Waterloo. The Frosh Issue provides you with a wealth of information in one compact, hopefully attractive, package.

In this issue are articles to tell you what to bring to Waterloo, how to cope when you arrive, to make you laugh, and to start you off in the right way. Also included at the back are the eight pages of the Orientation section. These pink pages will list all the Orientation events happening in your first week. Get out to as many of these events as you can—they're lots of fun, and you get to meet many of your soon-to-be classmates.

Look through this issue, enjoy it, learn from it, and bring it with you when you come to Waterloo. With mathNEWS, your big siblings, and the University officials to guide you, your big step in the University world should be both enjoyable and successful.

Stuart L Hodgins
mathNEWS Co-Editor

On-Campus Housing

Student Villages

It's very likely that you already have a place to live staked out in Waterloo, so why is this article here? You may want to live somewhere else before your days here are through, and there are quite a few choices.

UW has a housing office that can be reached through the switchboard (885-1211, if you haven't memorised it yet). They have information about nearly anything related to housing, both in Waterloo and in other cities where co-ops are common (Toronto, Ottawa, Calgary, etc.).

The largest on-campus residences are Village 1 and Village 2. Most frosh go into Village 2, which is essentially all double rooms. It is rather noisy—with about 50 people to a floor, parties and stereo wars are not easily contained. Village 1 is arranged in smaller cubical 'houses' with 15 people to a floor, so it's a little more civilised. V1 has almost all single and interconnecting (two rooms separated by a door) rooms. Residence fees for the next two terms will be about \$1675 for a double room, \$1750 for interconnecting rooms, and \$1800 for a single room. This is for one term, and includes 21 meals a week.

Church Colleges

Waterloo has four affiliated or federated church colleges which run residences as well. St. Jerome's is the oldest of the four and has two separate residences, St. Jerome's for men and Notre Dame for women. It is sponsored by the Roman Catholic church. Renison College is the Anglican college on campus, and, like St. Jerome's, has separate residence buildings for men and women. St. Paul's College, sponsored by the United Church, has a large residence and associate program, and Conrad Grebel College, operated by the Mennonite church, has a smaller residence and associate program. Residence fees for each of these run around \$1700 per term, with varying numbers of meals depending on the college. Some colleges may have single rooms available.

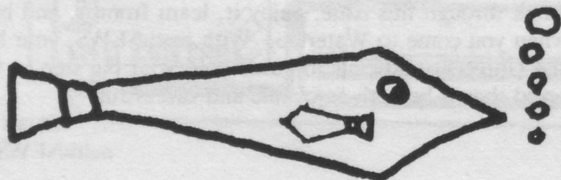
Waterloo Co-op Residences

The Waterloo Co-operative Residence Inc. is a student-owned residence complex located near the UW campus. They are in several divisions, most on Phillip Street (Clayfield, Kershaw, Carver and Phillip Street divisions), and the last on University Avenue (called Dag Hammarskjold House or Hammar for short). The co-op residence single rooms are smaller than Village singles, but they are also cheaper. The double rooms are about the same size as the Village 2 doubles. The large single rooms are just double rooms with one occupant. With a room, you are automatically part of the residence meal plan. However (here is where the 'co-operative' part comes in) you have to do about three hours of work a week, called the "fag" (mopping floors, washing pans, Sunday cooking, anything that needs to be done, the students do it). This is part of the reason that co-op living is cheaper than Village living.

The townhouse divisions are only a year old, but have been beset with problems ranging from sky-high utility bills to shoddy construction and the question of impropriety in land deals. Until things settle down a bit, these divisions would be best avoided.

You can't usually get a single room in the co-op residences unless you have lived there for a couple of terms, or you are applying for the summer term. WCRI also has a few apartments available in the Phillip Street division for those with enough seniority to get one.

For more information on the co-op residences call 884-3670 during regular working hours.



Off-Campus Living

While it can be an advantage to live in the Villages for at least one's first year, living off-campus also has its advantages. It's usually cheaper, and you generally have more room and freedom. You also have more responsibility, and cooking and cleaning can add a few hours a week to your schedule.

There are many possibilities for off-campus living. You might find a room in a family's home, or have an apartment or townhouse or some such flat. In any case, the first person you will be dealing with is the *landlord*. Some are very understanding and can be very obliging. Others can be downright difficult to please. Just remember, if something goes wrong, consult the legal resources office in the Campus Centre *immediately*. If you're polite to the landlord, pay the rent on time, and obey the rules, you should have no problems.

If you are getting the lease, you may find it necessary to sign for a minimum of one year. Even if you are in the co-op program, you can usually find reasonable students to sublet to while you're working out of town. Even if you're the ones subletting, you can often make arrangements to return to the same place when you return to campus from your work terms.

Most places will require you to bring your own supply of sheets, blankets, pillows, and possibly furniture, cooking utensils, and an initial supply of food. You should also bring a few of your Mom's favourite recipes to get you started (and maybe a fire extinguisher if it's your first time cooking).

If you haven't found a place yet, keep checking with the Off-Campus Housing Office over top of Village One. They have housing lists for Kitchener-Waterloo as well as for other large cities in Ontario (for when you go off to work for a few months). Additional rental listings can be found in the *Kitchener-Waterloo Record* and in a flyer called "Read it'n'Rent." Housing boards are located throughout the campus, notably at the Campus Centre, outside the MathSoc office, and in Carl Pollock Hall. Ads for housing both available and wanted are posted on all of these boards. The reasonable price range fluctuates, but you can expect to pay between \$175 and \$250 a month for a livable (but not luxurious) place, depending also on furnishings and location. Shop around before you take a place, but remember that good deals can be snapped up fast!



Writing the ELPE, Dude

So like, the good news is you're gonna be havin' a groovy time durin' most of Orientation Week, right? Well, like, the bad news is, you gotta write an exam durin' the first week too. I know, man, what a bummer! Like totally bad vibes! Like, write an exam after all those beers man, you gotta be kiddin' me man.

Well I'm here to tell ya, like, don't sweat it man. Take it down a thousand, man. The ELPE's a breeze, man. Ya just gotta keep remindin' yourself that the thing's an English exam, man, and English is like, prob'ly, your mother tongue. Ya also gotta remember is that what the markers are lookin' for is like, can ya B.S. your way through a one hour exam. And if ya forget all that and like, fail the ELPE, you've still got ten or fifteen more times to write it before the big-wigs even like, take notice or somethin'. So relax dude. just blow by the ELPE and keep lookin' forward to the narly parties still to come.

Co-op And You

Welcome to Waterloo, home of one of the best co-operative education programs in North America. This system will be affecting you for the next five years.

The first big question is just what is Stream 4 and Stream 8? No matter which stream you choose you will have to do eight straight months of school. An associated question is whether you want to do it during first year or fourth year.

Some people prefer Stream 4, which goes eight months straight in fourth year. The advantage of this is that you start earning your co-op money sooner and you can waste all of your high school earnings in the first four months. Others prefer Stream 8, which goes eight months straight in first year. The advantage to this is that you get it out of the way and when you graduate you have a better chance of getting a job with your last co-op employer. The choice is yours. When it comes down to it, it really doesn't matter much.

This next sentence will teach you everything you need to know about co-op. Attend your co-op orientation (MATH 000) sessions. These sessions, timetabled for each student, are run by the Department of Co-operative Education. Various aspects of co-op will be discussed there each week.

The process for getting a job is really quite simple. For those of you in Stream 4, it is also a little rushed. Those of you in Stream 8 don't have to worry about this until January, but continue reading so you can prepare yourself.

Sometime around the third week of September you will have to give the Department of Co-operative Education 20 to 30 copies of your resume. No late resumes will be accepted. Some students like to have these professionally typeset. You may attach letters of reference, but if it's more than one page then it must be stapled together. No fancy covers or duo-tangs!

The *Want Ads* are probably the biggest classified section you'll ever read. You'll get your copy a few days after you hand in your resume, probably on a Friday, and you'll have to tell the department what jobs you're applying for a few days later, likely the following Monday. You may only apply to 15 *Want Ad* jobs. The department will then send your resume and your high school marks to the employer. For those of you in Stream 8, your high school marks will be sent out in January even though you will have a set of University marks by that time.

Late postings are the job descriptions from companies that didn't make it into the *Want Ads*. These will start the day after your *Want Ads* selections are due and are posted on bulletin boards in Needles Hall and the Math building. You may apply for as many of these as you like.

Don't go crazy applying for jobs. A half-decent resume will net you interviews from half the jobs you apply for. At the time you'll be going through interviews (approx. October 19-November 6) you will be attending classes and writing mid-terms. If you have 10 or 12 interviews then you could very well end up living in Needles Hall for two weeks.

The interviews usually last from 20 to 30 minutes, but since they're usually running late you better budget on missing between 1½ to 2 hours of classes per interview. The interviews themselves can be fun. Some students have been quizzed on their proficiency using a particular computer language. So, restrict the amount of lying you do on your resume.

If you run into any problems at all *don't ignore them*. See a co-ordinator and get it all straightened out even if you feel stupid doing it. If you can't find your co-ordinator go to the MathSoc office and ask to see a Student Advisory Council rep. He or she should be able to solve your problem or tell you who to see.

Co-op is a wonderful experience. Jobs are available in places as far away as Seattle, Washington and Atlanta, Georgia. Students have even gone to Australia and Japan. So, you can look forward to all the good times and good people you'll meet on your work terms.

Prof Quotes

Many moons ago a regular feature started in *mathNEWS* and quickly became perhaps *the* most delightful thing about Friday mornings, namely, Prof Quotes. Throughout the term, students like yourself provide us with wonderfully worded, incredibly insightful, easily misinterpreted, or hopelessly muddled sayings from the mouths of professors during their lectures. We take the best of them (or at least filter out the duplicates) and print them in the next issue, which sometimes annoys the profs. Here's a bunch of the past year's best (or worst, depending on how you look at it) prof quotes.

"What I was about to say is just a load of nonsense anyway so why don't I just shut-up."

Hoffman MATH 234B

"A Cray is so fast that it can finish an infinite loop in three minutes."

P.A. Buhr CS 354

"What kinds of things are continuous? You say sex? Well, that's certainly not discrete."

Welch STAT 230

"Say you're in an exam and you say to yourself, 'Oh my God! Did I take this course!'"

Lefcourt Psych 355

"If my wife's giving me a hard time then you'll all fail."

J. Baker MATH 240A

"Looky, looky, looky ... it's the identity matrix!"

K. Rowe MATH 234A

"This becomes less and less common sense and more and more magical technique."

C. Springer STAT 231

"Exposure is not something you do in a park but actuaries do it on tables."

H. Panjer ACTSCI 433

"C&O, it's tough but it keeps you off the streets."

S. Vanstone C&O 230

"Got any ideas, or are you completely blown away?"

Wainwright MATH 140A

"When all the engineers come out of here they say, 'Five years ago I couldn't spell engineer. Now I am one.'"

Lastman MATH 130A

"The treatment of masturbation in these books is absolutely fascinating!"

L. Smith ECON 101

"Let me do this in a more confusing way, because it will probably help you to understand"

Cummings MATH 234A



Keener beer, it's here
... smooth as a sine curve.

Survival Kit

As you prepare to venture into unknown territory, you need to know what the essentials of life at UW are. Besides the obvious (a stereo system of some sort—preferably small but *powerful*) here is a list of items you may find helpful. This list is *not* meant to be comprehensive, only to suggest ideas. Remember, for most of us, it's a long way home!

Things you should bring from home

Well, anything you can fit in your gear that the folks won't miss for at least a week. Among these items:

Official Papers

- Registration and fee statement (*vital*)
- Bank books and cards, chequebooks, etc.
- Parking stickers, PAC card, Health Insurance cards
- ID, e.g., driver's licence, SIN card
- mathNEWS Frosh Issue (but of course)

Clothing

- Clothing for hot weather, cold weather, rainy weather (heh, heh), snow gear if you won't be home 'til Christmas or later
- Umbrella and K-way (heh, heh)
- Interview clothes (business best) for co-ops
- Sewing kit for quick minor repairs

Other Stuff

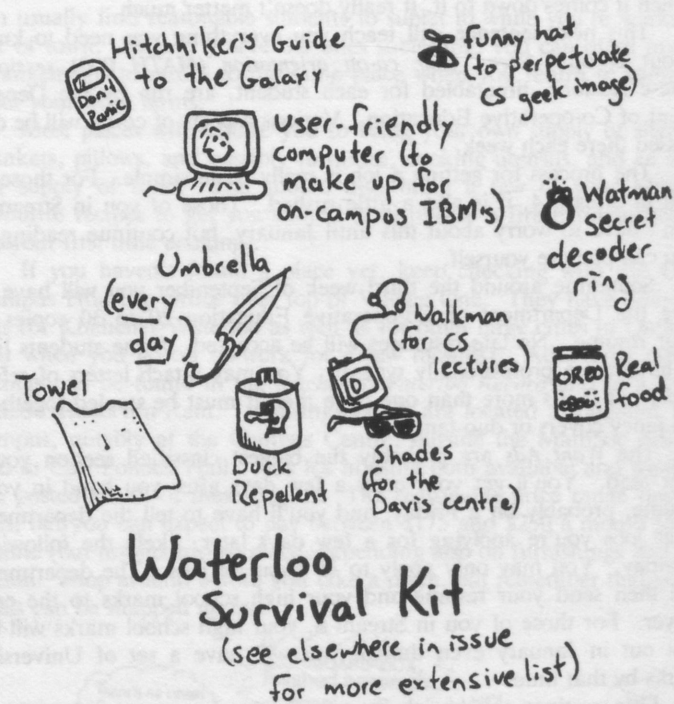
- Money (lots, see articles on money elsewhere)
- Towels, sheets, blankets and pillows
- Small kettle, cups, dishes, cutlery (more for those not getting room and board)
- Alarm clock (unbreakable, with snooze bar for 8:30 classes)
- Toiletry items (enough to last until you buy some here)
- Your bike (UW has excellent bike access)
- Bicycle lock (UW has excellent bike thieves, too)
- Favourite water pistol (if you have one)
- Posters, if your landlord allows
- Favourite stuffed animals (but beware of hostage takings, etc.)
- Calculator (scientific) and mechanical pencils

Things to buy when you get here

No, we're not getting a cut from the Chamber of Commerce. It's just not worth the hassle of hauling this crud when you can get it here.

Stuff

- Paper, pens, binders, erasers, rulers, pencils (why not start fresh—leave that high school gear at home)
- Alka-Seltzer (see Village Food, see also Guelph)
- Water pistol (if you didn't bring one—they are essential)
- Basic tools (screwdriver, bottle opener, etc.)
- Laundry and dish detergent
- Quarters (for laundry, parking, video games, etc)
- Aspirin or equivalent medication



Problem Solvers

University is going to be a new world to you and with it comes new problems to be solved (calculus assignments excluded.) Here's an article to show you where to go and who to ask when these problems arise.

The first problem solver you will encounter will be your big brother or big sister. Once upon a time they have had the same questions answered for them, probably by their big brothers and sisters, so use them during orientation week and after to help you. MathSoc is another place to go for help throughout the term. Although the friendly office worker may not know the answer, he/she will probably know where you can find it.

Questions dealing with your courses or future in math are best directed to your faculty advisor. OPERATION MATHSTART is set up in room MC 5158 to be your registration and scheduling problem solvers in the first days at school. Starting Tuesday, September 6, MATHSTART should be a necessary stop for all students with problems that should be tackled right away. (If there is a lineup, go stop by the Drop-In Centre for a while, then return to MC 5158.) These professors will be able to guide you through course selections and academic prob-

lems a student in the prof's particular field may encounter.

General questions about math and the university procedures are best directed to the Math Undergraduate Office on the fifth floor of the MC building, room MC 5118. They may direct you to the Registrar's Office on the second floor of Needles Hall room (NH 2001), though, if it is a question dealing strictly with the University.

Across the hall from the Registrar's Office is Counselling Services, room NH 2002. Here, professional counsellors will be able to help students with their concerns about school, life, or their futures. The Chaplain's Office in room NH 2050 offers the same type of help in a spiritual manner if you so prefer.

The Ombudsman is a counsellor of the pseudo-legal variety. He/she is on campus in the Campus Centre, room CC 235, and is approachable free of charge by appointment for any student wishing legal help.

Hopefully, any question or concern you have can be answered by using one of the services mentioned here, but only you can search them out. May these helpful hints of where to go when you have a problem be sufficient in helping you.

Extra-Curricular Organisations

Campus Rec

Campus Recreation is . . .

- the largest student employer on campus
- full of job and volunteer opportunities
- free to every student
- archery, windsurfing, fencing & kendo, badminton
- co-rec broomball, volleyball, slo-pitch
- competitive basketball, hockey, soccer
- loaded with individual activities
- a place for relaxation, good time, and friendly people
- fun, fun, fun
- yours to enjoy!!!

Get yourself a copy of the campus recreation brochure and be sure to get your term off to a great start!!

Warriors Band

Since 1966, the Warriors Band has been appearing at UW athletic events to provide musical support for the good guys (and terrible puns for the bad guys).

The Band plays a football and basketball games, although we try to attend games in other sports and the occasional civic function such as the local Santa Claus parade.

We fire up the Waterloo teams and their fans with a selection of fast, loud songs and biting, yet clean chants. Thanks to Jim Schoenfeld, "Have another doughnut" joins "We beg to differ" as a response to referees' calls we don't like.

A lack of musical ability has never stopped anyone from joining the Warriors Band. We can always use people with violent tendencies to hit the bass drum or smash the cymbals. Even if you left your soursaphone in Pinawa or Chalk River, the band has a limited number of instruments that can be used during games.

To get involved with this fun group of athletic supporters, show up at any Warrior football or basketball game or at our weekly *practices* (Thursdays at 5:30 pm, PAC 1088).

Applied Math Club

The name "club" can be misleading. The Applied Math Club is an entirely student run organization whose main intent is to provide a number of crucial service to applied math undergraduates as well as grad students and faculty. The numerous seminars the club presents serve to give students a taste of what is happening in different fields of Applied Math usually with references to modern research. Every term the club organizes a main social event like the *coffee and tea party* or *A.M. barbecue*. It is here that students and faculty alike can discover how exciting it is to work in such a dynamic field with such eccentric and friendly people.

But the Applied Math Club provides many more services than these. After two years, the club has compiled an ENORMOUS file on graduate school information, including descriptions of math departments for most major universities in Canada and the United States.

Any third or fourth year student wishing to pursue graduate studies should take advantage of these resources.

Also on file are lecture notes for many applied math courses, information about the Annual Comap Applied Math Modelling Contest and information about the recently formed Applied Math Clinic, an organization set up to provide upper year students with opportunities to solve mathematical problems in industry.

Watch for posters announcing upcoming seminars and social events, and if you think you help out to ANY degree please drop by the club office, MC 5188. It does not take much work to aid something that everyone will be proud of.

Computer Science Club

The Computer Science Club welcomes you to Waterloo. We're a club for everyone interested in any way in computers. Memberships are affordable even to university students, and we provide members with access to our up-to-date library of computer reference books, an account on our Unix minicomputer, a 10 discount at the Computer Book and Supply Centre, and intelligent conversation on almost every topic. Aside from all this, we provide consulting (help) to everyone, members and non-members, who needs it, and we invite interesting people to speak at our meetings, which are also open to everyone. Drop by our office (MC3037, across from MathSoc) anytime, have a cup of tea and become a member!

St. Jerome's and Mathematics

I'm sure that some of you out there have chosen to study mathematics at St. Jerome's College. Here are a few pointers on what you can expect over the next few years.

St. Jerome's is a church college affiliated with the University. Students registering in any co-op or regular math programme can enrol at St. Jerome's. Those of you who have chosen the regular system of study will probably attend all of your first and second year core courses (Math 130 A/B, 134 A/B, 230 A/B, 234 A/B) at St. Jerome's. If you are a Stream 8 co-op, you will take all of your first year and 2A core courses at the college. If you are in Math/CA, your 1A and 2A core math courses will be offered at St. Jerome's. However, those of you who are in 4 Stream will only spend your first term at St. Jerome's. Thereafter, the core courses which you require will not be offered at St. Jerome's during the terms that you are on campus.

Being at St. Jerome's, you will probably find that your classes are smaller in size (approximately 75 students in 1A) than those on the main campus (especially after 1A, when about 25-35% of the class goes on its first work term.) There are no lecture halls at St. Jerome's, and so your classes will be taught in classrooms (unlike the main campus where lecture halls hold about 200 students per class.) This may make it easier for you to adjust to university as the atmosphere won't be too much different than that of high school. It may also be easier to meet and get to know your classmates.

When you are enrolled at St. Jerome's, do make a point of going over to the math building occasionally to visit the C+D, use the library facilities or just to drop by MathSoc and use the stapler. Of course, don't forget to pick up a copy of *mathNEWS* on the occasional Friday morning (get there *early* to be assured of your copy). Also, most of the math clubs (eg. AM, CSC) have offices in the Math and Computer building, so drop by and see what's going on.

MED

(with cameo appearance by Sweeney Todd)

mastHEAD

This is the corner of the paper wherein the editors thank everyone who came out and helped put the paper together. If you'd like to see your name in miniscule type, head out to *mathNEWS* in the fall!

Contributing to this issue (complete with high schools—recognize anyone?) were: Brian Capstick (Westminster S.S., London), John Herbert (Medway S.S., Arva), Frank Letniowski (Huron Park S.S., Woodstock), Jim Jordan (Red Lake D.H.S., Red Lake), Sandy Graham (Huntsville H.S., Huntsville), Colin Anderson (Merivale H.S., Nepean), Trevor Green (Holy Cross H.S., Saskatoon), Rick McTavish (Huron Park S.S., Woodstock), Karen Smith (Episcopal H.S., Baton Rouge) and the editors: Stuart L. Hodgins (South Huron D.H.S., Exeter) and Tom Vandelo (Central S.S., London). Other contributors include Lisa Falco, Darryl Ricker, Jim Kalbfleish, Peter Brillinger, and the unsung heroes of *mathNEWS* past.

Thanks go to Graphics Services for their consistent high quality in printing up *mathNEWS*, to DCS for use of the mighty Imagen, and to Little Ceasars for the pizzas. *Shoe* appears courtesy of Mr. MacNelly and Tribune Media Services. Various illustrations throughout the issue were from several *Paranoia* modules published by West End Games.

Thanks everyone, and good luck Frosh!

Studying Magic

Well, here you are, Jane/Joe Frosh entering first year in the Faculty of Mathematics at the University of Waterloo. You have just finished secondary school with good marks, especially in mathematics. You have a partial idea of what you'd like to take at university but likely don't know what to expect. Many of you expect to make Computer Science a part of your education, but hopefully you'd like to include mathematics as well.

As you are well aware, mathematics is a classical study that goes back millenia. That, however, is far from saying that it is a dead subject today. Group theory, the theory of relativity, combinatorics and optimisation are just some examples of theories that have largely been developed within the last century. The advent of computers has also furthered the cause of mathematics—both in the theory used to develop computers and in the use of computers to solve problems that would have been impossible to solve in the past. It is the widespread use of mathematics in our society today that brings about the need for advances in mathematics.

Let's bring this down to your personal study of mathematics at Waterloo. Altogether in first and second year, you will be taking four calculus, four algebra and two statistics courses. The calculus courses consist of deeper looks into differentiation, integration, and sequences and series than you had in high school. This is basic material that will appear frequently in many other courses (for "basic" *do not* read easy). The algebra classes consist of classical algebra, linear algebra (two terms) and abstract algebra. Most of classical and abstract algebra you may not have seen before, but linear algebra will generalise your concepts of vectors and matrices. The statistics courses are comprised of probability theory, probabilistic testing of theories, and data fitting.

In your 1B term, you will be asked to decide which major program you would like to enter. The possible departments are Applied Mathematics, Pure Mathematics, Combinatorics & Optimisation, Computer Science, Actuarial Science & Statistics, and the Department of Mathematics for Industry and Commerce. Joint programs between disciplines exist. Each department has leaflets which describe their programs. As well, a special Information Night is given in your 1B term to help you decide. Be sure to attend!

Specialisation of your courses mostly starts in third year. If you think you made the wrong choice in 1B, it is possible to change. The notable exception is CS which can be difficult to get into and has special major CS courses in second year.

For more information on specific programs, look elsewhere in this issue, go to the Mathematics Undergraduate Office on the fifth floor of the MC building, or ask questions of anyone you can find. It is a good idea to check things out before 1B to help make the choice easier.

Well, there you have it, mathematics at Waterloo in a nutshell. For whatever reason you've come here, good luck on any mathematical choices you make.

fletniowski

Theorem of the Issue

This theorem originally appeared in the February 16, 1973 issue of mathNEWS

Three Navaho women sit side-by-side on the ground. The first woman, who is sitting on a goat skin, has a son who weighs 140 lbs. The second woman, who is sitting on a deerskin, has a son who weighs 160 lbs. The third woman, who weighs 300 lbs., is sitting on a hippopotamus skin. What famous geometric theorem does this symbolise?

Answer: The squaw on the hippopotamus is equal to the sons of the squaws on the other two hides.

Advanced Insanity?

"What a decision – honours math or advanced honours math?" This thought may be going through your head now. For those of you who unaware, there are two streams of honours math courses. Most math students choose to take the stream Math 130a/b and Math134a/b; however, Math 140a/b and Math144a/b, the advanced honours courses, are also available. The advanced courses cover the same material as the regular courses but more rigorously and theoretically. Hence more work is expected and required, with more challenging assignments. As an encouragement to consider these courses, the Math Faculty has assured students that taking these course will not significantly change the final marks that they would have gotten in the regular honours sections. They suggest students who take these courses have at least 85 in their Grade 13 math courses and 65 in the Descartes; however, having marks such as those does not mean you should take the advanced courses.

Some advantages to taking the advanced courses are the smaller classes, which more easily allow friendships to build and give a more personal rapport with the professor; and the deeper understanding of the basic material that is achieved, which carries over into upper year courses.

There are, of course, some disadvantages. The courses lean toward a more pure mathematics style which can override understanding the applications of the material. Also, there is some tendency to lose contact with the rest of the first year students because of the separation of the courses. Hence, some effort should be made in other first year courses to keep contact.

If you enjoy mathematics, aren't worried about a little extra work, and would like a thorough understanding of some basic math concepts (*nothing* is considered 'obvious'), then you should investigate these courses. The overall format varies greatly with the professors who are teaching. Thus to get a good idea of what to expect, it is best to attend some lectures. You can easily switch into the 130/134 courses after a few weeks if you so desire. It is also a good idea to attend a few 130/134 lectures to see what they are like. It is important that you never feel pressured to take these courses. Math 130/134 are challenging enough; after all, they are *honours math courses*.

For myself, some topics that I took in 140/144 appeared in the 2nd year regular honours courses which helped greatly in my understanding of them. Therefore, in retrospect, I am glad that I took these courses. Most people I have talked to in the regular honours sections feel that those were enough work and that they would not have survived 140/144. Thus (as always) the decision is yours and yours alone (alas . . .).

fletniowski

Warriors Football Playbook

For those Warriors Football fans new to the game, mathNEWS presents an excerpt from the Warrior's Playbook, recovered two years ago from an offensive lineman decimated in a typical Western onslaught.

Signal Called	
42 Red	Off-Tackle Fumble on 2
63 Baker	All Ineligible Receivers Go Out for a Pass
14 Blue	Illegal Procedure on 'Set'
21 Green	Double Surprise Fake Punt
8 Yellow	Quarterback Sneak Back Ten or Fifteen Yards and Get Tackled
11 Black	Pass to CHCH-TV cameraman
12 Orange	Reverse to Goal Line and Concede Safety
67 Able	Complete Pass to Wide Receiver as Centre holds Linebacker
82 Yellow	Halfback Trap on Fumbled Snap
37 Blue	Miss Field Goal Attempt on Second Down
19 Red	Lateral Ball to Closest Lineman

Keener Bingo

You will soon learn that on occasions lectures become, well, less than interesting. For those times when counting ceiling tiles seems more appealing than the diophantine equation on the board, we present: Keener Bingo.

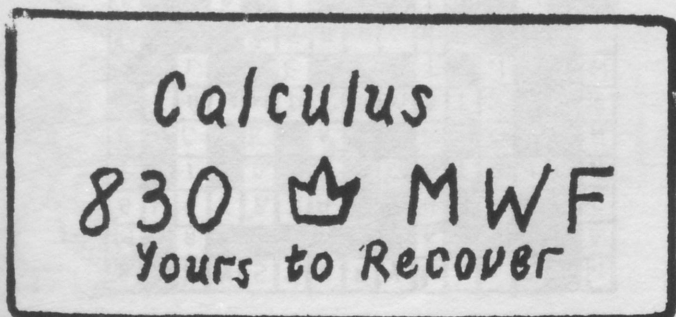
To begin, we must clarify the definition of a keener. They can easily be spotted in the front rows of any class, where they are noted for their remarkable ability to ask an unusually large number of confusing questions during a lecture. They often bear an uncanny resemblance to characters in "*Revenge of the Nerds*." Standard keener equipment includes: a bulky briefcase, checkered trousers, undershirts and a powerful calculator. Optionally this can be a very powerful calculator such as an HP 41CV with card reader, printer, and optical wand. Other optional keener accessories include: a plastic pocket protector for the front shirt pocket (containing six different coloured pens, several mechanical pencils, a screwdriver and a pencil sharpener), a slide rule, a complete geometry set, and a well-used flowcharting template. Should all this not give them away, keeners tend towards extra long right arms (for better visibility), tape on their glasses, wearing T-shirts or buttons displaying the first 200 digits of π (which they know by heart), and having twice as much stuff in the briefcase as can possibly fit.

The act of being keen: you will come to be painfully familiar with this procedure. When the prof asks a question, makes a good point, omits something, or even for no reason at all, the keener will thrust his or her hand skyward and attract the prof's attention. This is almost always followed by a vapid and irrelevant question which serves only to confuse the class and often the prof.

The Rules: Pick out three keeners and write their names (class nicknames will do) on a piece of paper. As the keeners are keen, cross off their names. The first person to cross off every keener on their list yells "BINGO" and is awarded one bingo point. Play the game over several classes or several weeks and the winner is the person with the most points at the end of that time. For a more challenging game, arrange the names of nine keeners in a 3 by 3 grid. The winner is the person who first crosses off the names of three keeners in a horizontal, vertical or diagonal row. In both versions, the following rules apply:

- You may not use your own name, nor may you repeat names on the same card.
- An extra point is awarded if you preselected the keeners in the order that they were keen.
- Double score if you can guess their first words, such as "Sir...Sir...", "Professor...", "But...", "Excuuuuse me...", or the always popular "You forgot..."
- Triple points if the prof spots the keener but refuses to acknowledge his or her presence.
- Quadruple points if the prof threatens the keener.
- You are not allowed to physically abuse a keener in order to affect the placement of his or her hand.
- Bribes are illegal.

Before you begin, you may want to have a look at a keener at close range. Pay a visit to the EngSoc Orifice at Carl Pollock Hall. Happy hunting!



Prof Football

This classroom distraction comes to you from Wilfrid Laurier University where there is a rich football tradition. Perhaps we should modify the rules somewhat and call it Prof Rugby or Prof Basketball to honour our best teams, but then maybe this year will be the big year for our Warriors Football Team...and maybe it will snow next July!

The only requirement for this game is that it be played in a lecture with a prof who paces. Before the lecture begins, divide the class into two teams. For example, use the aisle in the middle of the room as a dividing line. You must also mark two goal lines at the front of the class. Do this by placing a piece of tape or other marking on the blackboard or front wall about one or two metres in from either side wall. When the prof arrives and the lecture begins, you can start playing Prof Football.

The object is to score a touchdown, which occurs when the prof crosses the goal line in front of your half of the class. The opposing team can try and prevent a touchdown from being scored by attempting to attract the prof to their half of the classroom, and then possibly score a touchdown themselves! The best way to attract the professor's attention is to raise your hand and ask a question. This requires some imagination because the question should be relevant and so must be thought up on the spur of the moment. Watch out though, because asking a lot of confusing questions could make you part of a keener bingo game (see the article elsewhere in this issue.)

It is best to play two twenty minute halves with a ten minute break at half time. This makes for a full fifty minutes of lecture entertainment. So, go out there and win one for the gipper!

Philosophy Ball Hockey

Keener Bingo and Prof Football are time-honoured classroom sports at UW. However, the creative minds of Math Frosh always want more stimulation than some lectures (or lecturers) can provide. mathNEWS is proud to present a new sport, invented by last year's frosh, especially for Philosophy Elective Classes:

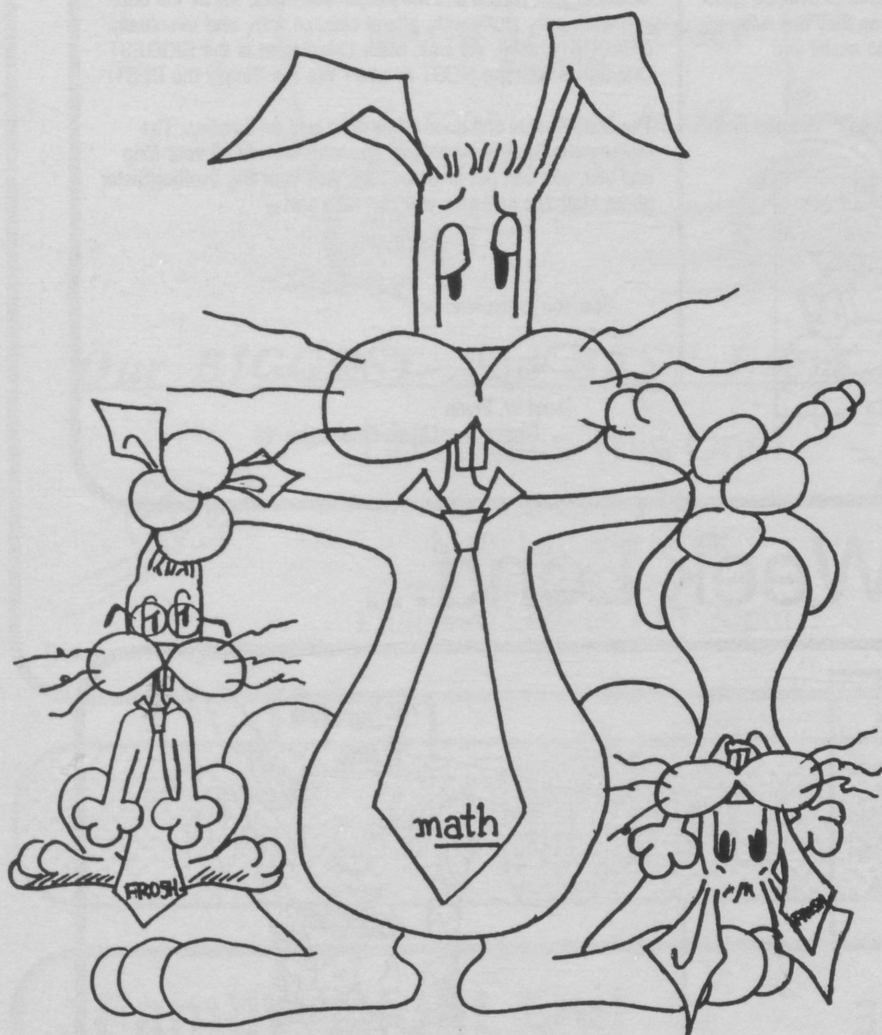
PHILOSOPHY BALL HOCKEY

Now, the term 'ball' hockey is rather misleading since you don't actually use a ball. Any Village 2 bag lunch apple will do, thus providing ample insurance that the apple is indeed bad and will probably explode if the sport is not played cautiously. Anyway, on with the rules:

The Rules

1. There are no faceoffs as dropping the 'puck' would make it splat and provide a quick end to the otherwise brilliant sport.
2. Bonking off the wall is ill-advised as the apple cannot take this kind of torture.
3. Score one point for each of the following:
 - a) Apple through opponent's legs.
 - b) Causing student to lose interest in lecture and gain interest in Philosophy Ball Hockey game.
 - c) Splatting part of apple into student's semi-open gym bag.
4. Score two points for each of the following:
 - a) Apple through opponent's legs and prof's legs.
 - b) Causing keener to lose interest in lecture and gain interest in Philosophy Ball Hockey game.
 - c) Splatting part of apple into keener's semi-open briefcase.
5. Score three points for each of the following:
 - a) Apple through opponent's legs and prof steps on it.
 - b) Causing prof to lose interest in lecture and gain interest in Philosophy Ball Hockey game.
 - c) Splatting part of apple into prof's lecture notes.

Math Orientation '88



DON'T MISS OUT!

To get in on the fun,
you must **FIRST**
register with us.

Note:
You **MUST** Register To Attend
Any Math Events!

So..
On Tuesday, September 6th
9:00am till Noon
Go to the Math Lounge
(3rd floor Math & Computer Building)
and purchase your FROSH Package
Package Price \$25

Events Include:
Drop-In Centre
Survival Game
Magical Mystery Tour
Three Chiefs' Night Out
Faculty Orientation Program
Meet-Your-Prof BBQ
ELPE
Off-Cam Pub/Event
Foot Rally
Family Night Out
Baseball Tournament
Las Vegas Night
Shinerama
Elora Gorge
All-Ages Pub
and Much, Much More...



Experience It!



Wednesday

Breakfast With The Dean

10:00am - 11:00am
Davis Centre
Great Hall

FROSH ORIENTATION PROGRAM
SPONSORED BY THE FACULTY

11:00am - 4:30pm

Meet-Your-Prof BBQ

4:30pm - 6:30pm
Columbia Field



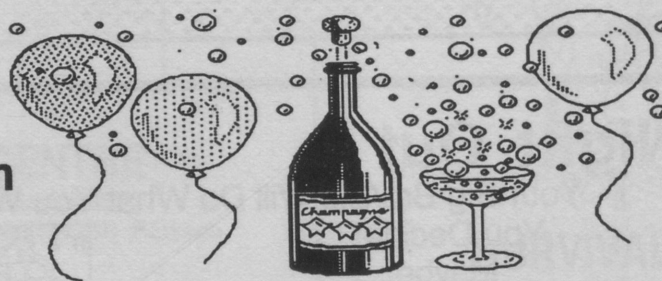
English Language
Proficiency Exam
7:00pm-8:00pm in the PAC
Bring Picture Identification



Then...

Three Chiefs' Night Out Presents:

8:00pm-
1:00am



South
Campus
Hall

Kindergarten Revisited!

This is an All Ages Event
(ID Required To Drink)

Wednesday

Thursday

University Registration
9:00am till Noon
In the PAC

Pay Tuition Fees (Bring Cheque & ID)

Math's Very Own

FOOT RALLY

(a.k.a Scavenger Hunt)

Noon till 4:00pm
Meet Under the Pink Tie

PRIZES
PRIZES
PRIZES
PRIZES
PRIZES



Then...

Off-Cam Pub

Road Trip to..

Stages
Stages
Stages

Proof of Drinking Age Is Required

Buses Leave at 8:00pm Sharp!
Math Loading Dock

(Bring Extra Money)

Off-Cam Event

Road Trip to..

Bingeman Park

Mini-Golf - WaterSlide
Go-Karts
and More!

This is an All Ages Event

Buses Leave at 6:00pm Sharp!
Math Loading Dock

Thursday

Friday

A Baseball Tournament



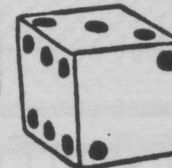
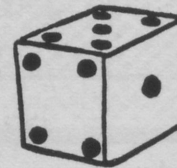
Columbia Field
Noon till 4:00pm



Then...

Las Vegas Night At Federation Hall

Games of Chance
Black-Jack
Roulette
and many others...



The Action Starts at 8:00pm
Tickets To Get In Are Provided
In Your FROSH Package!

This is an All Ages Event
(ID Required to Drink)

We Would Like to Thank the Many Sponsors of this Orientation

<i>Burger King</i>	<i>McDonald's</i>	<i>Duecks</i>	<i>Seri-Graphics</i>	<i>Bingeman</i>
<i>Party Novelties</i>	<i>Ritchie Buttons</i>	<i>Calhoun's</i>	<i>Labatt's</i>	<i>Molson's</i>
<i>B.J. Games</i>	<i>Schnieders</i>	<i>Stages</i>	<i>T.H.S.D.T.S</i>	<i>Thanx...</i>

We Would Like To Also Thank The Following Individuals

<i>D. Cassibo</i>	<i>S. Graham</i>	<i>Verna Keller</i>	<i>Lynn Williams</i>	<i>The Directors</i>
<i>S. Ruth</i>	<i>FRED!</i>	<i>T. Vandeloo</i>	<i>Hymie</i>	<i>and the Entire</i>
<i>S. Hodgins</i>	<i>L. Falco</i>	<i>J. Herbert</i>	<i>P. Obeda</i>	<i>Committee</i>

Friday

Saturday

Shinerarama... A University Tradition!

**We Wash Cars to Raise Money for Charity
Beat Laurier in A University Challenge!**

Buses leave at 9:00am return by Noon

Then...

We're Off...



Noon - 4:00pm

Road Trip - To Fun In The Sun -- On the Beaches of Elora!

All-Ages Pub

8:00pm - ???

Free Drink! - Free Fun!

Three Different Locations
Each With A Different Theme!

Locations To Be Announced

This is an All Ages Event



Saturday



Sunday

Finally...At Federation Hall...

It All Finishes Up With A Quiet Afternoon Of Movies
Starts At 2:00pm Ends Around 6:00pm

Stop By, Meet Some Friends and Grab a Bite To Eat.

This is an All Ages/Faculty Event



MATH ORIENTATION '88

Day	Event	Place & Time	Comment
Tuesday Sept. 6	Drop-In Centre	MC 3rd Floor 9:00am - 4:30pm	Come and meet your Big Brother and Sister and pick up your FROSH Package
	Survival Game	All Week MC 3rd Floor	Sign up and join the fun! Find all your 'enemies' !!
	Magical Mystery Tour	? 12:30pm - 6:00pm	Buses will be taking you on a secret trip! First buses leave at noon.
	Family Night-Out	??? 8:00pm - ?	Do what you want--It's decided by you! Meet up with other families.
Wednesday Sept. 7	Drop-In Centre	MC 3rd Floor 9:00am - 4:30pm	Big Brothers and Sisters can answer your questions.
	Breakfast with the Dean	Great Hall, DC 10:00am - 11:00am	Share juice, coffee, donuts and croissants with the Dean.
	Frosh Orientation Program (Sponsored by the Faculty)	11:00am - 4:30pm	Bring your questions for Math Faculty Profs to answer.
	Meet-Your-Prof BBQ	4:30pm - 6:30pm Columbia Lake	Meet your profs informally as they slave over hot coals to cook your dinner.
	ELPE	PAC 7:00pm - 8:00pm	Unfortunately this one can't be missed.
Thursday Sept. 8	Drop-In Centre	MC 3rd Floor 10:00am - Noon	Kindergarten Revisited! Theme Pub
	University Registration	PAC 9:00am - Noon	The Continuing Saga...
	Foot Rally A.K.A Scavenger Hunt	Noon - 4:00pm Under Pink Tie	Line up early Be Sure to finish by Noon.
	Off-Cam Pub/Event	Stages/Bingemans 6:00pm Bingemans 8:00pm Stages	Come out and Team Up in a search for Articles. Visit the local hotspot. For All Ages.
Friday Sept. 9	Drop-In Centre	MC 3rd Floor 10:00am - Noon	The Final Episode.
	Baseball Tourney	Columbia Field Noon - 5:00pm	Bring Your Glove for a Fun Time. BBQ afterwards then off to FED HALL.
	Las Vegas Night	Fed Hall 8:00pm - 1:00am	Come early (8:00pm) and bring your tickets. Partial proceeds to Shinerama.
Saturday Sept. 10	Shinerama	About Town 9:00am - Noon	All faculties washing cars for charity. Beat Laurier at its own game!
	Elora	Noon - 4:00pm	Spend a Day at The Beach!
	All-Ages Pub	TBA 8:00pm - ?	3 different locations - 3 different themes.
Sunday Sept. 11	Movies	Fed Hall	Come see your favourite movies!
	Sleep	?	Thanks for a great week..See you Monday!

EXPERIENCE IT !