University Announces $285 Tuition Hike

By FREDERICK GROBEN
University administrator announced Tuesday an increase of 5% in the cost of attendance for next year. This is the largest increase in tuition in the University's history.

The hike, the largest in the University's history, is due to the fact that the University has experienced a $2.5 million budget deficit. The University is seeking to solve the problem by increasing tuition and other fees.

The increase is expected to raise the tuition for the average in-state student from $1,450 to $1,525. Out-of-state tuition will increase from $2,560 to $2,655. The increase will go into effect on September 1st.

'Alumni should allocate the fee to the on-going expenses.'

University President Martin Meyerson said several other private universities may not increase tuition.

In a one-page announcement, Meyerson stated that "every effort will be made through fund raising to help students and their families meet these increasing costs. The University administration and the Alumni Association will aggressively pursue these programs to be organized."
This Week's Focus

**Dance**

**U. Students Will Be the Dancers When Twyla Comes to Annenberg**

BY NOAH KAYE

Twyla Tharp, who has taught her choreography to generations of young talent at the University of California, Santa Barbara, will conduct a master class on the work of the great American ballets this week.

Considered one of the foremost American choreographers working today, Tharp will be teaching with her company at 4:30 p.m. on Thursday, April 4, and 3:30 p.m. on Friday, April 5, at the sundial. The Saturday evening performance, also one of the events of the week, will include Tharp's one-act ballet, "Gone with the Wind," which is set to music by Paul Whiteman.

In "The Owl's Howl," Tharp's first look at the movements and the dancers' perception of it, the first of Tharp's works, the dancers perform a series of one-act ballets, set to music by the popular American composers of the early 20th century.

The second part, each of five dances is a twenty-four movement, consisting of movements by various composers of the 19th century. The first four movements are by Beethoven, Schubert, Chopin, and Debussy, and each one is performed by a different dancer, each of whom has a different movement.

People interested in participating in the work need no special talent or experience and can sign up at the Annenberg Center Reception Desk. For the three very short evening performances, people are welcome to try out the movements themselves, and each dancer will be selected by a casual audition.

Tickets are available at the door for $10. As in previous master classes, the students will be given a printed libretto in English provided for the performance. The program will include works composed by Tharp. In "The Owl's Howl," the students perform in groups of five, each led by a Japanese and a set of six movements.
Tuition on the Increase

Tuesday's announcement of a $350 tuition hike for undergraduate schools is indicative of a trend in University financing policies which may soon prove Penn's downfall from the competitive market for top-flight students.

At first glance, the need to meet the problems of milking pennies from overcharged tuition and the constraint to provide faculty with attractive salaries seem simple justifications for the increase. However, while the hike may be justified by these monetary concerns, a tendency to rely heavily on tuition hikes to meet expanding costs will in the long run not only affect the quality of the University.

If tuition is going to jump significantly each year, it may force lower and middle-income students to drop out or accept scholarships which are even less worthwhile than in the past. And, if the University reaches the point where it can no longer afford to be objectively selective among its applicants, but must choose its students increasingly on the basis of their ability to pay tuition, the quality of the student body will necessarily suffer.

Unless the administration wishes to see the University transformed into a private club for the few and able to pay exorbitant fees, those who determine the budget must decide that these large jumps in tuition are not perpetual events.

While this apocalyptic vision of the University's decline may be years from realization, it seems a clear red result of an over emphasizing of tuition hikes. The University must speed up its development funding campaign to seek increased private support and must find ways to squeeze extra money from the Commonwealth if tuition levels are to be stopped.

Additionally in this dilemma, it is disappointing that no income accruing from the tuition increase has been set aside specifically for an academic development fund. If some of the extra money provided by the hike allowed the University to provide improved service for the increased cost, yearly hikes will be more bearable.

While next year's increase is an irreversible fact, the year after that may yet be changed. If the open expression of concern and the University can find enough inside support to halt the constant increases in costs at the feet of the students.

Student Activities and Responsibility

Recently disclosed regulations in the operation of the Student Activities Council demonstrate the need for immediate change in the supervision of student groups.

The numerous fictitious organizations, false faculty advisors, false advisor listings, and overlapping of offices based in many of these organizations is inexcusable. To make matters worse, the Activities Council should have taken the next step to prevent the problem by requesting amendments aimed at making a review of group recognition stricter and more selective. The selection has been the formation of voting blocks which seem more interested in perpetuating their own power than getting true talent on campus.

In the future, more responsible student leadership must be found. If the present council does not take a greater rate in accrediting and investigating the Activities Council members and in the distribution of funds. Only in this way can the University community itself be assured that the Activities Council's proper function will be executed. It is a sad commentary that the student groups which have been able to see beyond their own selfish interests.

Letters to the Editor

The New Calendar is "Typical and Insensitive"

The proposal to begin the Fall term in late September is not inconsistent with the student body as a whole. However, it is a move directly opposed to the policies of the University. The students of the junior and senior class, for whom the current calendar is geared, will have to work at a rate to have a Labor Day break. I will not say the new Jersey Turnpike Authority every morning with a "Wanna Bitch? Wanna Bitch? Wanna Bitch?" Song.

The current calendar was established by the University. The changes were made by the junior and senior class in which they were in control. Therefore, it's not right to expect that we will be offered and work back the following year.

Granted that such songs are a minority, but they are a far too popular minority, and there is no excuse for the University's. "screw them all."

Tenure and Teacher

We were deeply disturbed to learn that one of the University's most highly acclaimed teachers was denied tenure primarily because of his opposition to the Vietnam War. The Administration wants to have those who do not think alike teach at the University. In this case, they have not only denied the student the right to hear his views, but they have also denied the student the right to have his views heard.

Another problem is that any professor who wishes to move from a liberal to a conservative-oriented department is forced to take a day or two of leave for every one of his classes. If he is going to be a professor at the University in the future, he must be able to move from one department to another without losing his position.

If the Administration wants to do something about it, they should put all the schools on a uniform basis, whether that means one or two graduate schools under one administration, I believe that the position of the professor will be forced to arrive during the second week of classes. It should be known as "one University".

TENURE AND TENURE TRACK

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Veterinary Medicine, Animal Biology, 594-7864, 143 School of Veterinary Medicine.

IS, RP - For further details contact Dr. Yenger

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230. M. R. IYENGAR
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Hal FRANK (Description under PSYCHIATRY)

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<th>Clara JORDAN (Description under NURSING)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wharton, Regional Science, 594-6729, 352 McNeil Building</td>
</tr>
<tr>
<td>IS - Economic theory of discrimination as applied to race or sex; human capital decision making by women.</td>
</tr>
</tbody>
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Jeanette PACKER (Description under NURSING)

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<tr>
<th>Gretchen WOOD (Description under ENGLISH)</th>
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</table>
"We believe that a major effort must now be made to develop independence of thought in our students by considerably increasing the laboratory time given to them for planning and obtaining their own education. We believe that such experience may provide them with a powerful motivation for developing in ways which assure their continued intellectual growth... We seek to respond to a need for greater flexibility to timely intellectual demands." Committee of Higher Education, College of Arts and Sciences, 1970.

The Registry's History and What It Is

On June 1, 1979, the Committee on the Goals of Higher Education of the College of Arts and Sciences here submitted its final report to its faculty. One of the major recommendations of that Committee was the gestation of all types of independent study. It recommended that a group "prepare a Faculty Register by soliciting from each member of the faculty, not only of the College, but also of the whole University, on a voluntary basis, a statement describing his (or her) research interests as well as related topics in which he (or she) might supervise undergraduate study, as his (or her) availability to do so." It recommended that this register be made publicly available. It has been periodically updated, and there have been efforts to do this, principally by Dr. Peter Conn of the College. Many others have been deeply concerned, such as the Independent Study Committee of the College, which handles the College 99 proposals.

The opportunity to do accredited independent study has existed at Penn for some time. The present Independent Study-Research Opportunity Registry is an attempt to implement some of the proposals of the College Committee on the Goals of Higher Education. Quite simply, it is a method of publicizing the possible areas in which students can do independent study, research participation, and fieldwork tutorials along with the names of faculty members who are willing to supervise students in these areas. It is meant to help faculty members and students with similar teaching and study interests locate each other.

It is important to keep in mind that faculty members sponsor independent studies on a volunteer basis. Many of them teach a full load, direct research projects, care for patients, advise students, serve on University committees and do various other tasks that are required of them. This means that faculty members who are extraordinarily committed to giving independent studies have to limit the number of students they sponsor. Be prepared to wait if you cannot find a faculty member who is willing to work with you. One of the best kinds of independent study, and one which is not often used on this campus, is that which involves a small group of students, an interested faculty member, and a subject of common interest.

Who Is Listed in This Registry?

All faculty members who responded that they wanted to be listed in the registry are here. Below the listing is this description of the various types of study.

Independent Study, Research Participation, Fieldwork Tutorial: What's the difference?

As far as we can tell there is no pronounced difference among these terms when it comes to accreditation. All of them involve student work under the supervision of a faculty member. One type of independent study, research, or fieldwork interest does not correspond well with those of the faculty member. However, this certainly does not mean that you shouldn't ask.

For Credit or Not For Credit

You can work with a professor singly or in small groups for credit or not for credit. Non-credit study is the simplest because it requires no approvals except by the participants. Because it is not a formal part of degree study, a non-credit situation tends to be more relaxed and, sometimes, less demanding. But if you want your independent study, research participation, or fieldwork interest to be recorded in your transcript and to count towards your degree, you must do so by a faculty member who is willing to sponsor it. There are several terms when it comes to accreditation. All of them involve student work under the supervision of a faculty member. One type of independent study, research, or fieldwork interest does not correspond well with those of the faculty member. However, this certainly does not mean that you shouldn't ask.

Crediting Procedure: It's not as bad as you think

Independent study is available in all the undergraduate divisions of the University, though registration regulations differ slightly from school to school. CHS. VSG, and SOE have a liberal time limit for independent study. But if you want your independent study, research participation, or fieldwork interest to be recorded in your transcript and to count towards your degree, you must follow certain rules. These rules vary with the kind of non-classroom study you are doing.

Crediting Procedure: It's not as bad as you think

Independent study is available in all the undergraduate divisions of the University, though registration regulations differ slightly from school to school. CHS, VSG, and SOE have a liberal time limit for independent study. But if you want your independent study, research participation, or fieldwork interest to be recorded in your transcript and to count towards your degree, you must follow certain rules. These rules vary with the kind of non-classroom study you are doing.

How To Use the Registry

Faculty members are listed alphabetically under the subject of their interests. You will find a list of the subjects under which faculty are listed. This list is not a political instrument. Rather it is meant to help you find your people. Some teachers are not listed under departmental names, but under an arbitrary subject division. (For example, Urban Studies is under one subject division. Housing, welfare and transportation study descriptions can be found under this division.) In cases like medicine in which the listings are numerous, we have tried to summarize the particular topic in a few words - printed immediately following the name of the faculty member.

An alphabetical index of faculty members' names is at the end of the register. Beside each name is a number that corresponds to the faculty member's number in the body of the registry. Since each listing is numbered consecutively in the registry, the number should help you to know approximately where to find a particular faculty member. For more information, see the College of Arts and Sciences Undergraduate Year for Action.

There is an address and phone number for each faculty member. You should make the first contact if you are interested. Again, it helps a lot if you have some clear ideas about what you want to study.

Codes: IS, RP, FT

IS means the faculty member is willing to sponsor INDEPENDENT STUDY, that is, a reading or research course.

RP means the faculty member is willing to sponsor RESEARCH PARTICIPATION, in which a student supervised by a faculty member assists in research or works on a research project which the faculty member oversees.

FT means the faculty member is willing to sponsor a FIELDWORK TUTORIAL. Such experiences combine independent study and fieldwork opportunities.

Other Places to Look

There are several existing types of independent study-research participation-fieldwork tutorial opportunities in various offices on campus. Some of them follow:

Urban Studies Program: 125 Fine Arts Bldg. Phone: 973-5380

University Year for Action: 415 Logan Hall. Phone: 904-8427

Community Work Study Office: 415 Logan Hall. Phone: 904-4744

Newark Urban Studies Work Shop: 127 Fine Arts Bldg. Phone: 904-1151

Th e Register which you have in your hand is the revised version of the one which appeared in April of 1973. Patricia A. Meyers, then held the position of Director of Academic Programs in the Office of the Vice-Provost for Undergraduate Studies, is responsible for its initial compiling and subsequent updating. I am grateful to all of whom made significant contributions. Most of the introductory sections in this revised edition were borrowed or adapted from the internal organization of the Register which has been modified in small ways, and many of the listings have changed since last year, this year's Register reflects the work of Ms. Meyers to a very large degree. I would like to extend my thanks to her, and her assistants, and to Rita Flame who has worked very hard with me to produce this revised version. In addition, Vice-Provost Humphrey Tonkin's support consisting of staff time and production costs made publication possible.

We hope to update and reprint the register each year. Please do let us know what you think of the registry: it is easy to use, is worth doing, and you want it. We want the registry to be useful. If it isn't, it's not worth the effort of so many to produce it. Let us hear your suggestions, and criticisms. Write to the Office of the Vice-Provost for Undergraduate Studies, 106 College Hall, or phone 904-1151.

Sponsored by the Office of the Vice-Provost for Undergraduate Studies

Wednesday, March 27, 1974
### ALLIED MEDICAL PROFESSIONS

<table>
<thead>
<tr>
<th>1. Nancy ELLIS</th>
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<tbody>
<tr>
<td>Allied Medical Professions, Occupational Therapy, 394-8311, 3901 Pine Street</td>
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<tr>
<th>2. Harry R. KISSILIEFF</th>
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<tbody>
<tr>
<td>Allied Medical Professions, Physical Therapy, 394-4051, 3901 Pine Street</td>
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<tr>
<th>3. Ruth L. EVERTHAL</th>
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<tbody>
<tr>
<td>Allied Medical Professions, 394-5780, 3901 Pine Street</td>
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### AMERICAN STUDIES

<table>
<thead>
<tr>
<th>4. Anthony GARVAN</th>
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<tbody>
<tr>
<td>College, Grad. A. &amp; S., American Civilization, 594-7395, 311, 301 College Hall</td>
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<tr>
<th>5. Melvyn HARRMAREK</th>
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<tr>
<td>GSAS, American Civilization, 594-7700, 301 A College Hall</td>
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<tr>
<th>6. R. Gordon KELLY</th>
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<tr>
<td>GSAS, Am. Civ., 594-7395, 301 College Hall</td>
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<tr>
<th>7. Murray MURPHY</th>
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<tr>
<td>GSAS, American Civilization, 594-7395, 301A College Hall</td>
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### ANTHROPOLOGY

<table>
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<tr>
<th>8. J. BORDAZ</th>
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<tr>
<td>College, Anthropology, 594-7461, University Museum</td>
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<tr>
<th>9. Erving GOFFMAN</th>
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<tr>
<td>GSAS, Anthropology, 594-6867, 412 University Museum</td>
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<tr>
<th>10. Alan MANN</th>
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<tr>
<td>College, Anthropology, 594-6866, 343 University Museum</td>
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<tr>
<th>11. Robert J. SHARER</th>
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<tr>
<td>GSAS, University Museum, EV 6-7400, ext. 236, Room 434 University Museum</td>
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<tr>
<th>12. B. WAILES</th>
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<tbody>
<tr>
<td>College, Anthropology, 594-6864, University Museum (room 339)</td>
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### ASIAN STUDIES

#### (see Oriental & Asian Studies)

### ASTRONOMY

<table>
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<tr>
<th>13. Samuel VILA</th>
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### BIOLOGY

#### (see Veterinary Medicine)

<table>
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<tr>
<th>14. Patricia ALLISON</th>
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<tr>
<td>Morris Arboretum &amp; Bio, CH 7-5777, 9414 Meadowbrook Avenue</td>
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<tr>
<th>15. A. Orville DAHL</th>
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<tr>
<td>College, Biology, 594-7005 or CH 7-5777, 206 Biology</td>
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### BLACK STUDIES

#### BUSINESS STUDIES

<table>
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<tr>
<th>23. David SOLOMONS</th>
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<tr>
<td>Wharton, Accounting, 594-7771, W-280 Dietrich Hall</td>
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### BUSINESS LAW

<table>
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<tr>
<th>24. J. K. S. GHANDHI</th>
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<tr>
<td>Wharton, Finance, 594-7615, W-110 Dietrich Hall</td>
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### BUSINESS MARKETING

<table>
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<tr>
<th>25. Morris MENDELSON</th>
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<tr>
<td>Wharton, Finance, 594-7638, W-18, DH</td>
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### INSURANCE

<table>
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<tr>
<th>27. J. D. CUMMINS</th>
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<tr>
<td>Wharton, Insurance, 594-6044, 307 Colonial Penn Center</td>
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### MANAGEMENT

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<tr>
<th>28. G. J. ANYON</th>
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<tr>
<td>Wharton School, Management, 594-7726 (Message 7722), DW 185 Dietrich Hall</td>
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### MEDICINE

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<thead>
<tr>
<th>29. Robert BREINHOLT</th>
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<tr>
<td>Wharton, Management EV 5-8881 or 594-7740, W 198 Dietrich Hall</td>
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### NURSING

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<thead>
<tr>
<th>30. William GOMBERG</th>
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<tr>
<td>Wharton, Management, 594-7722, W-196 Dietrich Hall</td>
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### ORIENTAL AND ASIAN STUDIES

### PEACE STUDIES

<table>
<thead>
<tr>
<th>31. Jerry WIND</th>
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<tbody>
<tr>
<td>Wharton, Marketing, 594-8267, W-256 Dietrich Hall</td>
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### PLANNING

#### (see also Urban & Regional Studies)

<table>
<thead>
<tr>
<th>32. Hassan ODEzech</th>
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<tbody>
<tr>
<td>GSAS, Wharton, 594-7801, Room 413 Vance Hall</td>
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</tbody>
</table>
OCCUPATIONAL THERAPY
Nursing, Graduate Division, 594-4726, 205 S. 34th Street
Personal Interests: Neurophysiology and Neuropharmacology.

PHYSICAL THERAPY
College, Psychology, 594-7311, Psychology Hall Building
RP - Sensory mechanisms; Vision; Color Vision

POLITICAL SCIENCE
Norman PALMER
Wharton, Political Science, 594-7662, E-130 Dietrich Hall
IS, FT - For Independent Study and Research Participation: South Asian Politics and/or Foreign Policy (mainly India, Pakistan, and Bangladesh).

For Research Participation and Fieldwork Tutorial: Philadelphia as an International City. Interviews with individuals in their private capacity and as representatives of groups and organisations engaged in international activities. It will also involve the administration and processing of questionnaires.

PSYCHOLOGY

199. Lee HURVICH
College, Psychology, 594-7311, Psychology Hall Building
IS, RP - Visual and auditory perception.

POLITICAL SCIENCE
Norman PALMER
Wharton, Political Science, 594-7662, E-130 Dietrich Hall
IS, FT - For Independent Study and Research Participation: South Asian Politics and/or Foreign Policy (mainly India, Pakistan, and Bangladesh).

For Research Participation and Fieldwork Tutorial: Philadelphia as an International City. Interviews with individuals in their private capacity and as representatives of groups and organisations engaged in international activities. It will also involve the administration and processing of questionnaires.

PSYCHOLOGY

199. Lee HURVICH
College, Psychology, 594-7311, Psychology Hall Building
IS, RP - Sensory mechanisms; Vision; Color Vision

Robert KRAUT (Description under SOCIOLOGY)

RELIIGIOUS THOUGHT
Robert A. KRAFT
College, Religious Thought, 594-5827, Box 36, College Hall
RP - Description of and cataloguing-editing of University Museum Papyri and related texts. Knowledge of a pertinent language is helpful, though not absolutely necessary (especially Greek, Hebrew, Arabic).

ROMANCE LANGUAGES

205. CHERITCHERPACK
College, Romance Languages, 594-5104, 548 Williams Hall
IS, RP - French Renaissance Literature and Civilization

206. L. DONALDSON-EVANS
College, Romance languages, 594-5128, 521 Williams Hall
IS, RP - French Renaissance Literature and Civilization

207. Augusta FOLEY
College, Romance languages, 594-5035, 521 Williams Hall
IS - Renaissance Period, 16th and 17th Centuries; and General literature, Continental Renaissance.

SCIENCE & SOCIETY

208. John BRAINEKID
Electrical Engineering, History and Sociology of Science, 594-4102, 330 Moore Street
FT - Visit five specified museums of technology (Washington, Northern Penna., three within 50 miles of the University) and report on each from point of view of history of technology. No freshmen. Must have use of automobile.

209. C. J. LAMBERTSEN
Institute for Environmental Medicine, 594-8692, 14 Medical Labs Building - G2, 5th & Hamilton Walk
IS, RP - Environmental Stress, physiological and toxic effects of oxygen, decompression sickness, control of respiration, inert gas exchange.

SLAVIC STUDIES

210. Maria BROOKS
College, Slavic Languages, 594-7338, 637 Williams Hall
IS, RP - Advanced Polish: one semester; Polish or Russian Folklore

SOCIAL WORK

211. Alexander HERSH
Social Work, 594-5559, 3701 Locust Walk
IS, RP, FT - Mental Retardation: especially services to the retarded in a variety of settings, community mental health, classroom, rehabilitation, etc. Area of the phenomenon may be selected according to student interest.

212. Julius A. JAHN
Social Work, 594-5556, 3701 Locust
IS, RP, FT - Social Research - principles, methods, applications - sample surveys, experimentation, statistics; Social conditions and programs effecting health, welfare and survival.

213. John S. MORGAN
Social Work, 594-5218, 3701 Locust Walk
IS - Social Security and Allied Programs - e.g. Income Security and Welfare; Comparative Studies in Welfare - International comparisons; Social Welfare Policy and Programs.

SOCIOLOGY

214. Aam DEULF
Wharton, Sociology, 594-7683, 583 McNeil
IS, RP - Students can combine reading in the area of social attiude formation with participation in on-going research on the role of television in determining such attitudes. Must have interest in children.

215. William M. EVANS
Wharton, Sociology, 594-7688, 440 McNeil Building, IS, RP - Sociology of Law or Organization theory.

216. Robert KRAUT
College, Sociology, 594-7677, 506 McNeil
IS, RP - Most areas of social psychology

217. Jerald M. STARR
Wharton, Sociology, 594-6717, 510 McNeil
RP - Secondary analysis of Public Opinion Survey data. This research would be part of a major project in the evaluation of historical trends in public opinion over the past three decades. Sociology-Social Psychology.

218. Jan SMITH
Wharton, Sociology, 594-6719, 607 McNeil
RP - For further information contact Jan Smith

219. E. Van DE WALLE
Wharton - Sociology, Population Studies Center, 594-6411, 246 McNeil
RP - Historical Demography - Study of a 19th century Belgian (French speaking) village. Includes coding and analyzing individual records. Required: a) Reading knowledge of French, b) interest in history and social structure, c) willingness to be involved with statistics.

URBAN & REGIONAL STUDIES

220. William MESK
Social Work, City Planning, 594-5017, 3701 Locust Walk
IS - Use of literature on theoretical and practical problems of economic and political empowerment for the Afro-American urban communities...developing concepts and approaches to strategies for change.

221. Thomas REENER
Wharton, Regional Science, 594-7814, 219 McNeil
IS - Urban Studies; Regional Planning. Contact Dr. Reinger for further information.

222. Anthony R. R. TOMAZINIS
Fine Arts, City Planning Department, 594-4681, 3400 Walnut Street
IS - Modern Western European City Planning.

VETERINARY MEDICINE

223. Oscar BARRIGA
Veterinary Medicine, Pathology, 594-5646, 223 Vet School
IS, RP - Immunology of Parasitic Infections

224. Adrian MORRISON
Veterinary Medicine, Anatomy, 594-4691, 2800 Spruce Street
RP - For further details contact Dr. Morrison.

Animal Biology

225. G.A. SCHALL
Veterinary Medicine, Parasitology, 594-6680, Veterinary Medicine, Room 226
IS, RP - Ecology of Helminth Parasites of Animals

226. Robert E. DAVIES and Adelaide DELULLA
Veterinary Medicine, Animal Biology, 594-7681, 139 Veterinary School (R. Davies); 594-7862, 143 Veterinary School (A. Delulla).
IS - Structure and function of muscle (including discussion of effects of various nutritional factors and of exercise).

227. Semih ERHAN
Veterinary Medicine, Animal Biology, 594-8811, Lipid Research Building
IS, RP - Chemical evolution, interaction between amino acids, prediction of protein folding patterns, etc.
Receptors; synthesis and transport of lipids and glycoproteins and their role in virus assembly. Mechanisms of viral-induced cell fusion.

168. John R. ROCKEY
Medicine, Ophthalmology, 683-8966, Scheie Eye Institute, 3 North 36th St.
RP - The interests of our laboratories focus on the molecular biology of vision and on immunohistochemistry and immunology. Within the several ongoing projects in these areas are a number of opportunities for students interested in research participation. As a recommendation for this work, the student should have a strong interest in molecular biology in one of these two areas. A good background in molecular biology, biochemistry or biophysics will be helpful.

Orthopedics
169. Stanley CHUNG
Medicine, Orthopedics, KI 6-2700 ext. 521 Children's Hospital
RP - Anatomy and histology of the human epiphaegal plate. A study of factors contributing to the strength of the growth plate.

Pathology
170. J. J. FURTH
Medicine, Pathology, 594-8284 204 Old Medical Building IS, RP - Enzyme synthesis of RVA and DNA by eukaryotic polymerses. Characterization of the enzyme and mechanism.
171. Pierluigi GAMBETTI
Medicine, Neuropathology, 594-6454, 471 Johnson Pavilion
RP - Light and electron microscopic radiautography axoplasmic flow; experimental neuropathology.
172. Pavel KOLODZSKY
Medicine, Experimental pathology... Children's Hospital, Bainbridge KI 6-2700-238 IS, RP - In vitro methods to detect various types of reaction (immune) of patients against cancer.
173. James E. WHEELER
Medicine, Surgery, 662-3201, 475 Administration Building, HUP
RP - Histologic study of bone metabolism: development of techniques (microradiographic) and evaluation of selected patients with various bone diseases (osteoporosis, osteomalacia).

Pediatrics
174. F. O. ADEBOJO
Medicine, Pediatrics, KI 6-7700, 1427 Catharine Street IS, RP - Study of obesity using human adipocytes grown in tissue culture as a model. A study of the morphological and biochemical characteristics of these cells should help immensely in our understanding not only of obesity but of other pathological states involving human adipose tissues.
175. M. C. GLICK
Medicine, Pediatrics, KI 6-7700, 5653, Children's Hospital Building IS, RP - Biology and biochemistry of mammalian surface membranes related to cell differentiation and malignancy.
176. David GOODMAN
Medicine, Pediatrics-Biochemistry, 594-6393, 491 Anatomy-Cell Biology Building IS, RP - Biochemistry of hormone action and regulation of ion transport.
177. John HEWETSON
Medicine, Surgery, KI 6-7700, Children's Hospital Building IS, RP - My laboratory is interested in the immunity, both humoral and cellular, associated with infectious mononucleosis.
178. Michael E. NORMAN
Medicine, Pediatrics, 594-6518, 564 Johnson Pavilion IS, RP - A study of immunologic mechanisms in the development and perpetuation of human glomerulonephritis.
179. Elias SCHWARTZ
Medicine, Pediatrics, KI 6-7700 ext 210 Children's Hospital IS, RP - The research efforts concern the control of bronchial synthesis in normal and abnormal cells, and the genetic diversity of diseases involving abnormalities in hemoglobin, including Cooley's anemia as an 'id' cell discipline. The research project would primarily involve biochemical approaches to these problems.
180. Stanton SEGAL
Medicine, Pediatrics, KI 6-7700 ext. 561 Children's Hospital

Pharmacology
181. C. Paul BIANCHI
Medicine, Pharmacology, 594-8821, 133 Old Medical School IS, RP - The format for independent study consists of one term devoted to a research problem in muscle or nerve physiology combined with directed reading pertinent to the research problem. The second term consists of a tutorial in which the research data provides the basis for reading in the field of cell physiology. The term paper is based on research results.
182. Marilyn HESS
Medicine, Pharmacology, 594-6131, 114 School of Medicine IS - We are studying the mechanism of action of thyroid hormones in influencing the response of the heart to autonomic drugs and neuronal stimulation.

Physiology
183. Alexander BECKMAN
Medicine, Physiology, 594-7918, A302 Richards Building IS - Neurophysiology-brain mechanisms involved in the control of interspecies. Involves study of neornorphological and neuropharmacological factors.
184. Stella Y. BOTELHO
Medicine, Physiology, 594-8725, A-201 Richards IS, RP - Mechanism and control of secretion by the orbital gland. A glass surround the eye. Basic research with some application to diseases, systemic and ocular.
185. Gerald M. CARLSON
Medicine, Physiology, 594-8778, D403 Richards Building IS - Gastrointestinal tract activity; the basis for contractile activity; physiological factors regulating contractile activity. Studies are performed in unanesthetized animals (dogs and rhesus monkeys) chronically implanted with devices for monitoring intestinal contractile activity. Students should be interested in working with animals and assisting in animal surgery.
186. Sukhamay LAHIRI
Medicine, Cardiovascular-Pulmonary, 662-3172, 195 Maloney Building, HUP IS, RP - On-going projects concern: physiology of carotid chemoreceptor; control of respiration during rest and exercise. Students interested in these areas physiology are welcome to share the informative work.

Psychiatry
187. R. K. EBERT
Medicine, Psychiatry - Division of Family Study, EV 2-680, 4505 Chestnut Street IS, RP - Assessment of sexual knowledge and attitudes of college and high school students; test construction-development in the area of family and marital problems.
188. Hal FRANK
189. Henry A. JORDAN
Medicine, Psychiatry, 823-7960, Rm 15, 4th floor, Stouffer Building, Philadelphia General Hospital IS, RP, FT - Human eating behavior and the regulation of energy balance. Studies include the laboratory investigation of feeding behavior, naturalistic observations of feeding behavior and clinical treatment of obesity.
190. Reuben KRON
191. Frederick L. NEWMAN
Medicine, Psychiatry, 446-6001, EPPI-Henry Avenue & Abbetford Road, Philadelphia 9129 IS, RP, FT - MH Evaluation Procedures. Developing ways to estimate the role of a Community Mental Health Program's system of services (organization and management structures, clinical policies, and client service management) on the client's ability to function autonomously in the community.
192. Harold PERSKY
Medicine, Psychiatry, 823-7594, 465 Stouffer Building, HUP IS, RP - Relation of hormones to moods in man.
193. Smart ZUCKERMAN
Medicine, Psychiatry, 823-7589, PGH - Reception Center, Hills Building IS, FT - Psychiatry - interrelated disciplines; anthropology, ethnology, psychology, pre-med, medical, post graduate, education.

Radiology
194. She-Ren LIN
Medicine, Radiology, KI 6-4900 Ext. 303 Graduate Hospital IS, FT - For details contact Dr. Lin.

Surgery
195. John HALE
Medicine, Surgery, 662-3801, HUP IS, RP - For details contact Dr. Hale.

Surgery
196. Beecer JAMES
Medicine, Division of Neurosurgery, 662-3488, 210 White Bldg. HUP IS, RP - Clinical and laboratory work in the research fields. Cerebral blood flow and cerebral metabolism are being intensively studied in both aspects.
197. S. Grant MULHOLLAND
Medicine, Harrison Department of Surgical Research, 594-8808, 6-703 Richards Building IS, RP - Participation in research on the mechanism of steroid hydroxylation in adrenal cortex. Involves biochemical studies and some biophysical studies.
198. K. C. TSOU
Medicine, Harrison Department of Surgical Research, 662-2871, 1323 Ravidin Building, HUP IS, RP - Preparations of subcellular fractions of tissues, such as liver, heart, kidney and brain. Biochemical and biophysical studies of these preparations for enzyme activity.
199. N. SARASIMHUL
Medicine, Harrison Department of Surgical Research, 594-8808, 6-703 Richards Building IS, RP - Participation in research on the mechanism of steroid hydroxylation in adrenal cortex. Involves biochemical studies and some biophysical studies.
200. Herbert W. WALLACE
Medicine, Surgery, KI 6-5015, Graduate Hospital IS, RP - Biomaterials - Interaction of blood with foreign surfaces; fluorochromes-their uses in medicine; the biochemistry and physiology of extracorporeal circulation and artificial ventilation: human protein metabolism. 

MUSIC
201. George ROCHBERG
College, Music, 594-5444, 201 S. 34th Street For details contact Dr. Rochberg IS, RP - Computer-assisted musical research (Research Participation - practices in Medieval, Renaissance or Baroque Music). (Fieldwork Tutorial).

NURSING
202. Joa HIMEBACK
Nursing, 594-8299, 204 Morgan Building IS, RP - Physiology especially in area of biological rhythms.
planning; planning theory development and applications; policy planning and advanced organization design.

22. Morton LUSTIG
Wharton School, 594-6211, 39th & Walnut
PT - Public agencies in: planning, housing, public finance

34. Shik K. GUPTA
GSAS, Operations Research 594-6807, 247 Diichard Hill
IS, RS - Planning in developing countries; social, economic, and legal issues involved with the date collected by Earth Resources Technology Satellite.

CHEMISTRY (see Medicine)

35. B. COOPERMAN
College, Chemistry, 594-6330, 358 New Chemistry Bldg.
RP - Mechanism of enzyme action; Antibiotic interactions with ribosomes.

36. Robert C. DAVIS
College, Chemistry, 594-6499, 356 Chemistry
IS, RS - Physical and chemical studies of biologically important molecules. Computer calculations of the properties of these systems.

37. Donale FITTS
College, Chemistry, 594-8628, 553 Chemistry Building IS, RP - Theoretical physical chemistry.

38. Madeleine M. Jouille
College, Chemistry, 594-8334, Chemistry D5.
IS, RP, FT - For details contact Dr. Jouille.

39. K. A. KRIEGER
College, Chemistry, 594-6682, 128 Chemistry
RP - Heterogeneous catalysis - Catalytic selectivity, Sophomores, juniors and seniors only.

40. Pussy LU

41. Joanne G. MILLER

42. Edward R. THORNTON
College, Chemistry, 594-6330, 446 New Chemistry Building IS, RP - (1) Laboratory research in biological and bioorganic chemistry, involving collaboration with a graduate student, doctoral fellow. (2) Development of "white papers"dealing with the capabilities of molecular chemical knowledge for enhancing the quality of human life. Possible areas include: pollution, ecology, ethics and law, philosophy of science, unique problems of the Third World, literary treatment of science, role of women in science, biosynthetic pathways, neurochemistry. The goal is to formulate recommendations or designs for humanistic use of science in shaping the future of the world.

43. Donald VOET
College, Chemistry, 594-4457, 349 Chemistry Building RP - X-Ray crystal structure analyses of molecules of biological interest such as nucleic acids, drugs, enzymes and proteins. Students will undertake the structural analysis of crystals of such substances.

CLASSICAL STUDIES

44. Michael H. JAMESON
College, Classical Studies, 594-7406; 711 Williams Hall IS, RS, FT - Greek literature, history, mythology, religion, archaeology; such work is only rewarding if the student has already taken advantage of introductory offerings, here or elsewhere.

45. Donald LATERNEER
College, Classical Studies, 594-5337, 703 Williams Hall IS - Readings with advanced students in Greek and Roman historians in the original languages or readings in Latin poetry (in the original) with consideration of its debt to Greek poetry.

46. Wesley D. SMITH
College, Classical Studies, 594-6665, 713 Williams Hall IS - Greek and Roman writings on medicine; Influence of classical literature on later writers.

DENTAL MEDICINE

Biochemistry

47. Julian B. MARSH
Dental Medicine, Biochemistry, 594-8936, 546 Levy Building IS, RS - Biochemistry. Specifically, studies on (a) synthesis of glucosamine basement membrane of rat kidney (b) plasma lipoprotein synthesis by rat liver.

48. Joel ROSENBOOM
Dental Medicine, Biochemistry, 594-6576, 400 Spruce Street IS, RS - For details contact Dr. Rosenboom.

49. Irving M. SHAPIRO
Dental Medicine, Biochemistry, 594-8396, 542 Levy Building IS - Environmental pollution with special reference to lead. We will study the origin of selected pollutants and their effect on the human organism. Current methods for detecting and measuring the presence of lead in children will be evaluated.

EDUCATION

50. John YANCEY
Dental Medicine, Educational Resources, 594-8750, 400 Spruce Street IS, RP - Graphical representation of abstract concepts of textual materials; various educational research projects in the School of Dental Medicine.

Histology-Embryology

51. Richard C. HEROLD
Dental Medicine, Histology and Embryology, 594-8990, 417 Levy Building IS, RP - Developmental Analysis of Tooth and Bone

52. G. E. LEVENSON
Dental Medicine, Histology-Embryology, 594-8996, 437 Levy Building IS, RP - Developmental Biology. Specialized tissue and organ culture as well as cell culture. We are working on aspects of maintenance of the differentiated state in tissue cultures of connective tissues, bone and tooth germs. This includes studies on effects of certain vitamins on the tissue cultures. Also of interest - mechanisms of histogenesis. A wide variety of culture techniques, time lapse photography etc. are used.

53. Charles E. WILDE, Jr.
Dental Medicine, Histology, Embryology & Genetics, 594-8994, 412 Levy Building IS, RP - Modern Developmental Biology.

Microbiology

54. Baselyn EISENBERG
Dental Medicine, Microbiology, 594-6551, 245 Levy Building IS, RP - The research in my laboratory is primarily concerned with the growth, physiology and morphology of streptococci. Ongoing projects include immunological studies of the cell surface, studies of macro-molecular synthesis, particularly DNA synthesis and isolation of mutants. A second project involves the study and purification of lactic hytrogenases in lactic acid bacteria.

55. Burton ROSAN
Dental Medicine, Microbiology, 215-594-8808, 400 Locust Street IS, RP - My laboratory has been studying the structure and chemistry of bacterial surfaces and extracellular products. The primary object of these studies is to correlate biological properties, i.e., virulence, susceptibility to bacterial viruses, ability to adhere to specific host surfaces, to extracellular surface polymers. The student participating in these studies will have an opportunity to gain experience in a wide variety of laboratory methods including automated amino acid analysis, gas chromatography, infrared spectroscopy, column chromatography, eleetrophoresis, etc.

Pediatrics

56. Howard M. ROSENBERG
Dental Medicine, Pediatric Dentistry, 594-5611 or 594-4929, 400 Spruce Street IS, RP, FT - Generally, the subject of study would be the educational aspects of dental education: Areas of study could include: (1) Determinations of objective criteria for evaluation of teacher effectiveness; (2) Determinations of objective criteria for student clinical achievement; (3) Determination of criteria for dental school admissions; (4) Development of rational approaches to curriculum development; (5) Development of methodologies for the effective teaching of clinical dentistry. In addition, studies relating to the effective teaching of preventive dentistry to patients are planned.

ENGINEERING & APPLIED SCIENCE

Bioengineering

57. Abraham NOORDERGRAFT

58. Shirs TAKASHIMA
College of Engineering & Applied Science, Bioengineering, 594-8537, 559 Moore School IS, RS - For details contact Dr. Takashima

O. M. SALATI
College of Engineering, Civil & Urban Engineering, 594-6536, Towne Building, 113A IS, RP - Transportation Problems (Planning and Engineering Aspects): -Urban Public Transportation (including field work on SEPTA, etc.), Transport for the disadvantaged -Freight Transport

Education

59. Alan GLATTTHORN
Education, Teacher Preparation, 594-7381, 217 Education Building IS, FT - Secondary Schools Teaching - alternative schools.

60. James M. LARKIN
Education, Elementary Education, 594-5863, C-29, IS, RP - Social Science Curriculum Implementation Fieldwork in local elementary schools.

61. O. M. SALATI
CEAS, EES, 594-8110, 297 Towne Building IS, RP - Design and evaluation of technological aids for education and development of material for use in a course on musical acoustics. This would include aid in demonstrations.

62. Joseph SCANDURA
Education, Graduate Division, 594-7386, 310 Walnut St.
IS, RP - Research on Human Problem Solving.

John YANCEY (Description under DENTAL MEDICINE: Education)

63. Gail ZIVIN
Education, Human Learning & Development, 594-7374, 3700 Walnut, Graduate Education Building, Room D-31 IS, RP - Psychology: Child development (observational research on social signals) w other adults' social signals

Computer Science

64. Peter JESSEL
College of Engineering and Applied Science, Computer Engineering and Science, 594-8044, 356 Moore School IS, RS - Development of the undergraduate computer science laboratory. The work will involve the construction and assembly of digital logic and microprocessors.

65. Aravind K. JOSHI

66. Noah PRYNES

Electrical

67. N. H. FARRAH
College of Engineering & Applied Science, Electrical Engineering and Science, 594-5682, Room 368, Moore School RP - Microwave and sound imaging through optically opaque materials with applications in nondestructive testing of materials, archeology and noninvasive imaging in the human body.

68. John FISCHER

O. M. SALATI (Description under EDUCATION)

69. J. M. SAI

70. Jay N. ZEMEL
College of Engineering & Applied Science, Electrical Engineering and Science, 594-5445, 310 Moore School IS, RS - Study of methods for measuring physical...
FOLKLORE

Maria BROOKS (Description under SLAVIC STUDIES)

GEOLOGY

James E. BOCKHEIM (Description under FINE ARTS)

88. Alan GAINES
College, Geology, 594-7446, 102 Hayden Hall
IS - Topics in Geology. For further information contact Dr. Gaines.

89. Robert GIEGEGACK
College, Geology, 594-5191, 115 Hayden Hall
IS - Topics in Geology. Highly specialized background prerequisite: Contact Dr. Giegengack for further information.

GERMAN

90. Frank TROMMLER
College, German 594-7332, 745 Williams Hall
IS - Modern German Literature

HEALTH CARE & COMMUNITY MEDICINE

(see also Allied Medical Professions, Dental Medicine, Medicine, Social Work, Veterinary Medicine)

91. Elias COHEN
Medicine, Community Medicine, 594-6014, 4219 Chester Avenue
IS - Social Gerontology; Health Care of the Aged; Long term care systems.

Nancy ELLIS (Description under OCCUPATIONAL THERAPY)

92. Joseph A. FORTUNA
Medicine, Community Medicine, KI 6-4000 X 701 or 594-6304; 4219 Chester Avenue
IS, RP - planning, development operation and evaluation of emergency health services at the system and at the facility level. In quality of care, public education, community involvement, information systems, training, etc.

93. Shirley HEINEMANN
W. Phila. Community Mental Health Consortium, EV 7-5000 ext. 348, PCh, Stouffer Building 6th Floor
RP - We are a research and evaluation department of a large community mental health center engaged in a variety of projects evaluating all aspects of center operations. A student could either participate in an ongoing project or help develop one depending on interest and level of sophistication. We encompass a broad range of "academic subjects" ranging from clinical psychology to business administration and could provide exposure to the total process of research.

94. Robert MACK
Medicine, Community Medicine, 594-6012, 36th & Hamilton Walk
RP - Studies of maternal-infant interaction, particularly in relationship to early patterns of feeding behavior and later obesity.

Janette PACKER (Description under NURSING)

Arnold ROSSOFF (Description under LAW)

95. Lawrence SCHEIN
West Philadelphia Mental Health Consortium, Community Survey Unit - P.G.H., EV 7-5000 ext. 247, Stouffer Building 6th Floor
RP, FT - The studies would assist in the collection and analysis of comparative data on social, psychological and physical adjustments to aging. This interdisciplinary research project in gerontology involves samples of elderly mental health center patients, residents of nursing homes and retirement facilities, and elderly household members in this community.

96. Theodore HERSHBERG
Philadelphia Social History Project, University of Pennsylvania, 133 S. 36th Street, Suite 111, Philadelphia Pennsylvania 19174
IS, RP, FT - Philadelphia Social History Project is the largest project in the world to use computers for the study of past behavior. A machine-readable data base exists covering the study of urbanization, industrialization, transportation, family, neighborhood, occupation, ethnicity along with range of demographic variables. Contact Dr. Hershberg for more information.

M. PEARSON (Description under ORIENTAL & ASIAN STUDIES)

W. Allyn RICKETT (Description under ORIENTAL & ASIAN STUDIES)

97. Martin WOLFE
College, History 594-5701, College Hall 208
IS, RP - European welfare history in the 19th and 20th century. Using general socioeconomic history to explain important changes in policies and attitudes concerning public welfare.

JUDAIC STUDIES

Jeffrey H. TIGAY (Description under ORIENTAL & ASIAN STUDIES)

Robert A. KRAFT (Description under RELIGIOUS THOUGHT)

LAW

William M. EVANS (Description under SOCIOLOGY)

98. F.G. KEMPIN
Wharton, Business Law, 594-6859, W-243 Dietrich Hall
IS - Law, or legal history.

99. Arnold ROSOFF
Wharton, Business Law-Health Care Systems 594-7619, 207 Commonwealth Apartments
IS, RP - Health care institutions-legal regulation (particularly federal and state regulations of health maintenance organizations) and legal aspects of health care.

LINGUISTICS

100. F. SOUTHWORTH
GSE. South Asia Linguistics, 594-8211, 811 Williams Hall
IS, RP - Sociolinguistic variation in the speech community (USA); Language and non-verbal communication; South Asian Languages: a. structure, b. sociolinguistics, c. history.

LITERATURE

Roger ALLEN (Description under ORIENTAL & ASIAN STUDIES)

Clifton CHERPACK (Description under ROMANCE LANGUAGES)

R. Gordon KELLY (Description under AMERICAN STUDIES)

Frank TROMMLER (Description under GERMAN)

MANAGEMENT

(see Business Studies)

MATHMATICS

101. Edward L. GREEN
College, Mathematics, 594-8556, 4E19 David Rittenhouse Labs
IS - Mathematics - more precisely, any aspect of non-commutative ring theory.

102. Albert NILJENHUIS
College, Mathematics, 594-8465, 4N67, David Rittenhouse Labs
IS, RP - Mathematical algorithms for computers, especially in combinatorial areas.

103. Stephen S. SHATZ
College, Mathematics, 594-8468, 4N69 David Rittenhouse Laboratory
IS - Advanced undergraduates can do reading in areas of important mathematics infrequently covered by regular course.

104. Herbert WILF
College, Mathematics, 594-8741, 4EI Dietrich Library
IS, RP, FT - Computing, algorithms, mathematical analysis.

MEDICAL TECHNOLOGY

(see Allied Medical Professions)

MEDICINE

(see also Allied Medical Professions, Biology, Chemistry, Dental Medicine)

105. Robert COLMAN
College, Medicine, 594-2433 23 Maloney HUP
RP - Biochemistry of plasma proteolytic enzymes - assisting with characterization of the mechanism of activation of kallikrein; platelet physiology - the rule of antibodies in platelet injury, the interacting of platelets and lipids in thrombogenesis.
106. Allen S. GOLDMAN
Children's Hospital of Philadelphia, Experimental Pathology, 36th, 1740 Rainlade Street
RP - Familial and sexual differentiation. Experience with ongoing research concerning programming of the fetus and neonate for postpubertal sexual differentiation and adult reproductive function. Term paper to pursue one of the related topics in depth and to gain experience with the use of the library for scientific reporting and literature search.

107. William J. and Barbara V. HOWARD
Medicine, Medicine & Microbiology 823-7919, Clinical Research Center, P.G.H.
RP - Glycolysis in cultured cells, application of fibroblast cultures to metabolic studies of human diseases; studies of collagen biosynthesis in cultured cells.

108. Nicholas A. KEFALIDES
Medicine, Medicine at P.G.H., 823-7917, 700 Civic Center Boulevard
RP - The student will have the choice of participating in one of several studies dealing with the development, structure, biosynthesis and immunocompetence of connective tissue. We are currently involved in studies of collagen, elastic, proteoglycans and basement membrane embryology, structure and biosynthesis.

109. Alan Devin SCHREIBER
Medicine, Medicine and Hematology-Oncology Section, 594-3435 (HUP), 325 Maloney
RP - Temperature and immune system in tumor immunity; erythrocytes, platelets and leukocytes.

110. H. Ralph SCHUMACHER
Medicine, 594-6532, 536 Johnson Pavilion
RP - Pathogenesis of Arthritis: Electron microscopic and other morphologic studies into the pathogenesis of arthritides.

111. Roger D. SOLOWAY
Medicine, Gastroenterology; 662-2756; 341 Gates-Bldg., HUP
RP - Factors determining bile flow and composition. We have a number of physiologic and biochemical studies in which students may participate. All studies relate to bile flow and gallstone formation.

112. Bruce W. TROMTAN
Medicine, Gastrointestinal, 662-2096, 3 East Gates, HUP
RP - Investigations on the composition of gallstones and their surrounding gallbladder bile.

113. P.S. VENKATESWARAN
Medicine, 662-3186, 331 Johnson Pavilion
RP - Immunomodulation of capsular polysaccharides of diplococcus pneumoniae and streptococcus.

114. Jordan B. WEISS
Medicine, 662-2596, 7th Fl. Medical Building, FGH
RP - Evaluation of lipid digestion and absorption in man.

115. James S. WILEY
Medicine, Department of Medicine, 662-3433, 578 Maloney Foundation Research Foundation
IT, RP - Membrane transport of cations. The active and passive movements of potassium and sodium ions and their importance in cell volume regulation. Membrane calcium content and its role in controlling permeability in a variety of cells.

116. John R. WILLIAMSON
Medicine, (Dept. of Biophy.), 594-8783, Richards Building (Johnson Research Foundation)
IT, RP - Metabolic control mechanisms; mitochondrial function and metabolism, anion transport in mitochondria, direct biological functions and the chemical viewpoint. The model is the perfused rat liver. Independent study or research participation would be excellent experience for students in the preclinical curriculum, since it could involve some surgery, development of biochemical techniques, as well as training in scientific thinking.

117. Mary Beth BURNSIDE
Medicine, Anatomy, 594-8099, 226 Anatomy-Chemistry Building
RP - Development of striated muscle in tissue culture.

118. Gabriel De LA HABA
Medicine, Anatomy, 594-7377, 216-217 Anatomy-Chemistry Building
RP - Development of striated muscle in tissue culture.

119. Howard HOLTZER
Medicine, Anatomy, 594-8889, 226 Anatomy-Chemistry Building
RP - The relationship between DNA synthesis and the synthesis of contractile proteins in developing muscle cells.

120. J. LASH
Medicine, Anatomy, 594-7870, 236 Anatomy-Bldg.
RP - Embryology, cell and tissue culture.

121. Dr. R. R. MINOR
Medicine, Anatomy, 823-7923 Clinical Research Center, Philadelphia General Hospital
RP - Electron microscopic and biochemical studies of collagen, and basement membrane synthesis in organ cultures of embryonic tissues.

122. V. NACHMIAS
Medicine, 594-8000, 142 Anatomy-Chemistry Building
IT, RP - Actomyosin systems in eukaryotic cells. Electron microscopy (unlikely except for an unusually dedicated undergraduate).

123. Roland G. KALLEN
Medicine, Biochemistry, 594-5194, 346 Anatomy-Chemistry Building, School of Medicine IS, RP - Research on model systems and enzymes in order to elucidate the mechanisms of the extraordinary rate enhancements produced by these biological catalysts.

124. E. Kendall PYE
Medicine, Biochemistry, 594-8038, 323 Anatomy-Chemistry Building IS, RP - Cell-cell communication between individual cells (tissue culture, yeast): Enzyme Research, Microbial enzyme production, Also tissue culture, Immobilized enzymes. Affinity chromatography. Enzyme technology (medical, environmental and industrial applications).

125. Michael K. WEIBEL
Medicine, Biochemistry, 594-8998, 415 Anatomy-Chemistry Building IS, RP - Theoretical and applied enzymology. Research projects include enzyme therapy for inborn errors of metabolism, solid-state enzyme based analytical methods for clinical analysis, direct biological functions and enzymatic modifications. To these ends considerable emphasis is directed to methodology involving the chemical modification of proteins which alters biological response and function.

126. Walter D. BONNER, Jr.
Medicine, Biophysics & Physical Biochemistry, 594-8795, 606 Biology Building IS, RP - Bioenergetics, Cell Biology, Plant Physiology.

127. B. CHANCE
Medicine, Biophysics, 594-7199, 503 Richards Building IS, RP - Membrane Structure and function; Physiology of Cell Respiration; Bioophysical Instrumentations.

128. Ronald G. THURSTON
Medicine, Biochemistry, 594-8731, 607 Biology Building IS, RP - Drug and Alcohol Metabolism - Generally my research endeavors the area of control of drug and alcohol metabolism from the biochemical viewpoint. The model is the perfused rat liver. Independent study or research participation would be excellent experience for students in the preclinical curriculum, since it could involve some surgery, development of biochemical techniques, as well as training in scientific thinking.

129. James LEYDEN
Medicine, Dermatology, 662-2728, Hospital University of Pennsylvania, 2nd floor Center.
RP - The study of cutaneous bacteriology and its application to skin diseases.

130. Andrej KOZINSKI
Medical, Medical Genetics, 594-7114, D-106 Richards Building IS - For details contact Dr. Kozinski

131. William J. MELLMAN
Medicine, Human Genetics, 594-5672, B-10 Richards Building.
RP - Human Genetics. Contact Dr. Melman for further information.

132. P. S. MOORHEAD
Medicine, Human Genetics, 594-8738, B-7 Richards Building.
RP - Cytological studies on human, mammalian and other chromosomes; Cytogenetic aspects of abnormal cell growth, clinical anomalies, and mutation.

133. Howard GOLDFINE
Microbiology, Microbiology, 594-6384, Johnson Pavilion 353
RP - The biosynthesis and function of the lipid components of biological membranes.

134. Joseph S. GOTS
Microbiology, 594-8793, 238 Johnson Pavilion IS, RP - Research dealing with biochemical genetics in bacteria.

135. Akira KAJI
Medicine, Microbiology, 594-8283, 209 Johnson Pavilion IS, RP - 1) Molecular basis of tumor formation with the use of temperature sensitive Rous sarcoma virus. 2) Mechanism of replication of circular DNA which confers drug resistance to host bacteria. 3) Mechanism of protein biosynthesis.

136. Donald GILDEN
Neurology, 594-8030, 2nd Floor Johnson Pavilion IS, RP - Virus infections of the nervous system.

137. Myron D. GINSBERG
Neurology, 662-366, 4th floor, Piersol, HUP
RP - Ongoing research projects in the area of brain blood flow and metabolism, dealing with experimental cerebral ischemia ("stroke"). We are using the techniques of microangiography, in vivo measurements of pyridine nucleotide fluorescence; biochemical assays of high energy brain metabolites; and mitochondrial assays. We are applying these techniques to define the nature of brain stroke and to investigate possible means of preventing or lessening tissue damage following stroke.

138. David PLEASURE
Neurology, 823-7319, Philadelphia General Hospital (Mills Building).
IS, RP - Our laboratory works in the area of plasma membrane biosynthesis. We use biochemical methods, and are particularly interested in myelin and sarcocelium (muscle membrane). My area of competence in directing independent study is in the biochemistry of plasma membranes.

139. Martin REIVICH
Medicine, 662-3940, 2nd floor, Piersol Building, HUP
RP - For further details contact Dr. Reivich.

140. James C. SAUNDERS
Medicine: Otorhinolaryngology and Human Communication; 662-3900, 823A Maloney
IS, RP - The psychological and neurophysiological processes associated with the sense of hearing; The neurobiology of development with particular emphasis on sensory development.

141. Benjamin G. BRACKETT
Medicine, Ob-Gyn, 594-7175, 2nd Medical Labor., 4th floor, Piersol Building IS, RP - Ongoing research projects in the area of brain blood flow and metabolism, dealing with experimental cerebral ischemia ("stroke"). We are using the techniques of microangiography, in vivo measurements of pyridine nucleotide fluorescence; biochemical assays of high energy brain metabolites; and mitochondrial assays. We are applying these techniques to define the nature of brain stroke and to investigate possible means of preventing or lessening tissue damage following stroke.

142. Cynthia COOKE
Obstetrics / Gynecology

143. G. MIKHAL
Medicine, Ob-Gyn, 662-2940, HUP
RP - Endocrinology of Reproduction.

144. Bayard T. STOREY
Medicine, Ob-Gyn., 594-6884, 338 Med. Labs.
RP - Contact Dr. Storey for details.

145. Joseph TOUCHSTONE
Medicine, Obstetrics & Gynecology - Biophysics 594-6483, 307 Medical Laboratories
RP - Biochemistry and physiology of fertilization and early development in amphibians.

146. Don P. WOLF
Medicine, Obstetrics & Gynecology - Biophysics 594-6483, 307 Medical Laboratories
RP - Biochemistry and physiology of fertilization and early development in amphibians.

147. Herbert A. BLOUGH
Medical School, Ophthalmo, 662-3954, 2nd floor, North 39th Street.
Insecticide Poisoning
Claims More Chickens

WASHINGTON, D.C. (UPI) - Farmers began leading two million chickens into covered trucks and gassing them to death Tuesday and officials said as many as 40 million more may have to be killed because they ate pesticide-poisoned feed.

The first two million marked for death were at the McCarty poultry farm in Magee and Morton broiler farms in Morton. (Official of the Environmental Protection Agency ordered the gassing of the two million chickens in two covered trucks, with a hose from the Environment Protection Agency's insecticide-annihilation equipment into the coop areas.

Mississippi Agriculture Commissioner Jim Buck Ross said two more trucks were discovered and gassed. Those trucks were said to have been contaminated with Dieldrin before the gassing began, bringing the total number of chickens killed. The 30th of the state's total poultry population is in jeopardy.

BY CLASSIFIERS
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CAN YOU DO IT?
HERE'S HOW
HOW TO WIN
THE UNIVERSITY OF PENNSYLVANIA
BEER TASTING CHAMPIONSHIP

PRIZES:

Grand Prize Winner: $500 Scholarship/Research Grant
15 Finalists: Scholarship/Research Grants- $100 each
48 Semi-Finalists: $5 each

The Busch Center announces the First Beer Tasting Contest of the University of Pennsylvania.

The contest tests people's ability to identify various popular beers in blindfolded trials. The contest is part of an ongoing research study undertaken by the Busch Center on product perception.

In order to assist contestants in distinguishing among beers, free education sessions will be held from March 27-April 12, at which people will be taught by experts how to differentiate among beers. Beer will be provided for practicing these techniques at all sessions.

RULES:

1. The contest and the education sessions are open to people over 21 years of age who are affiliated with the University of Pennsylvania as students, faculty, secretaries, etc. Proof of the above will be required. The contest is not open to anyone affiliated with the Busch Center and her close relative and the Busch Center's close relative.

2. In order to qualify, contestants will have to tell cold Budweiser from cold Schiltz on a paired comparison basis when blindfolded. Contestants will be permitted six attempts at each trial correct. The qualification rounds will run from March 27 to April 12.

3. The elimination rounds will be from April 15-19. In these, contestants must distinguish between five beers when blindfolded. A list of 64 semi-finalists will be announced in the D.P. on April 22.

4. In the semi-finals on April 23 and 24, contestants will be paired and will compete in a head to head elimination in identifying 5 beers.

5. The 16 finalists will compete in a similar manner on April 26th.

6. Attendance at the education sessions is not a prerequisite for the qualification rounds.

Times And Locations Of Contest Activities Are As Follows:

Education Sessions
4:00, 5:00, 6:00 and 7:00 p.m., Monday through Friday at the following places:

400 Vance Hall, 3733 Spruce Street
Houston Hall (check bulletin board for room)

Qualification Tests
From 4:00 to 8:00 p.m. Monday through Friday at the following places:

Houston Hall (check bulletin board for room)
Alpha Tau Omega - 225 S. 39th Street
Kappa Sigma - 206 Locust Walk
Theta Xi - 3643 Locust Walk

Attendance At The Above Is On A First Come- First Served Basis

Groups that are interested in having tests or education sessions conducted on their premises on campus, or those wishing further information should contact the Busch Center, Vance Hall (Telephone number 394-7881) Extension 43.
**Gas Shortage Forces Band To Cancel Trip**

By ELENE MEYER AND DAVE WOHLFORD

The University band has run out of gas.

A scheduled four-day band tour of south Central Pennsylvania during spring break was canceled when the University's Commonwealth Relations Council asked the group not to travel. The band members have performed in a number of Cleveland State University events in recent months, and band members were in Cleveland Sunday night.

The Council, an organization composed of University alumni and students, was in favor of canceling the trip.

Council Director Edward Lane explained Tuesday that the band's prospective audiences also favored the cancellations. "It was not only the question of getting gasoline to the buses," he said, "but we would have had to transport the band's instruments in a safe manner.

Council members for the band tour were to have been sponsored by the band organization and University alumni.

Council member Joe Zane said Monday that the band tour was to have been sponsored by the band organization and University alumni.

"It would have been..." Zane said "...a total disaster -- we would have been performing in places we would have had to gear up our band students to do our own rehearsal in order to come to the meetings."

At present there are no plans for rescheduling the concert tour. Zane said, while the possibility of future Council-sponsored tours will be discussed at a later date.

The band tour has already been scheduled for late April at the State Capitol in Harrisburg, "but probably that will not be a problem for this tour," Zane said. "Because it is not being sponsored by the Commonwealth Relations Council."

We were invited by the state government to perform in an outdoor concert," Zane continued, "and I'm not sure what the future plans are for our band tour."

The band tour is to have included a series of local concerts in a number of communities.

"As all band students are interested," Zane added, "I think it's reasonable to expect that before the President is considered in the minds of general citizenry, that there should be hard evidence presented."

"It is not within the jurisdiction of the Commonwealth Relations Council to have attended our dinner party," the Council said. "We are not going to perform in an outdoor concert that is "free" because of the cancellations."

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-- William J. Ryan

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**International Affairs Association**

**Anspach Institute**

**CONFERENCE ON THE STATUS OF PUERTO RICO**

**MARCH 29-30, 1974**

**Room 285 McNeil Bldg., 37th & Locust**

**Schedule and Program**

**Friday, March 29**

1:30 pm to 2:15 pm: The Problem of Status
Speaker: Henry Wells Professor of Political Science
University of Pennsylvania

2:15 pm to 2:30 pm: Coffee Break

2:30 pm to 4:45 pm: An Evaluation of the Present: Commonwealth
Speaker: The Honorable Jaime Benitez
Resident Commissioner from Puerto Rico
Washington, D.C.

**Saturday, March 30**

9:30 am to 11:30 am: The Possible Alternatives: Statewide
Speaker: Mr. Baltasar Corrala del Rio, Esq. President, Status Commission
San Juan, Puerto Rico

**Free**

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**Grand Jury Evidence**

"The committee supposedly has not set up a plan to instruct the secret jury to consult with the University about the secrecy of the grand jury material which -- what the report had been leaked in a hourly court house since March 1.

It is possible that the material of the report will be limited only to the case of the grand jury and not the Medical Faculty and the Secretary of the University and the University Council.

But I don't think that's true," he said.

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Sponsored by the Law Alumni Society, the Law School, and the chapter of the Order of the Coif, a national legal fraternity. The lecture honors Roberts, a Supreme Court justice who served as Dean of the University Law School from 1948 to 1961.

ARCHIBALD COX meets with students to talk informally at on a variety of issues ranging from Watergate to the energy

grand jury, Cox said it was not necessary for the House Judiciary Committee to define an impeachable offense before requesting material, but it would be necessary for a grand jury to define such an offense before requesting material. He said that the committee was not likely to be required to present a formal plan to the Justice Department, but that the committee would be required to turn over any requested material. He said that the committee was not likely to be required to present a formal plan to the Justice Department, but that the committee would be required to turn over any requested material.

In a Tuesday afternoon press conference, Cox said he felt "the definition of impeachment should not

Anbe using the example of the

Again using the analogy of the
Virginia Slomas Comes to Palestra April 22; King, Evert Head Field

Lacrosse Co-captians Sheffield, Bock Find Different Paths to Stick Success

Doylestown Thrashes QuakerRuggers

Birddogs Go Home Boneless, PennNine Tops Lehigh, 5-2

By JOE BANKS

The Little Emperors' attack, as usual, was the key to their victory. The Blue Devils, who have been struggling all season with their defense, held off a valiant effort by the Quakers in the late stages of the game. The final score was 5-2 in favor of the Birddogs.

By CHARLES WILKINS

There's an old saying that success attracts. You might remember it best as when your parents said to you when you were young: 'We're going to be better than the last team you played.' Sheffield stated.

Benner's best chance of attracting the attention of the spectators was to make sure he came up with the 'We're going to be better than the last team you played.' His bat went into the outfield. I'd swing and miss it. If I swing and miss it, I know I'd be out of the game, and he'd be in. But that's not the case. I'd be in, and he'd be out."

Though the two co-captains don't talk about their opponents, they are used to playing against each other. The Birddogs, who have been struggling all season, held off a valiant effort by the Quakers in the late stages of the game. The final score was 5-2 in favor of the Birddogs.

The Blue Devils, who have been struggling all season with their defense, held off a valiant effort by the Quakers in the late stages of the game. The final score was 5-2 in favor of the Birddogs.