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INTRODUCTION

The Pre-Health Professions Advising Office was created in 1966 to help students seeking entry into one of the doctoral level health professions. Over the years the services provided by the office have grown to include: curricular advising, credentialing, programming, administering special programs, and general advising about university requirements. The office is staffed by an advisor, a freshman advisor, and a secretary. The advisors are further assisted by the Pre-Health Student Advisory Committee, which holds regular meetings with the advisor, conducts programming, and publishes a monthly Pre-Health Newsletter. Committee members also serve as peer advisors and have regular office hours during which they perform circumscribed advising of students.

The most active communication tool is the Pre-Health Listserv (PREHLTH-L) which contains postings from the Pre-Health Professions Advisor, students, and alumni. This information is typically short term, but important nonetheless (e.g. changes in office hours, student organization meetings, visiting speakers, general program information, etc.).

To sign onto the Pre-Health Listserv, you will need to send the following message to LISTSERV@LISTSERV.BINGHAMTON.EDU

SUB PREHLTH-L firstname lastname

Sometime later you will receive a welcome message from the listserv with basic instructions regarding usage, etc. If you have any difficulty, please send a message to Lynne Datto, Pre-Health Secretary (ldatto@binghamton.edu) and she will subscribe you manually.

In addition to the interactive topical format found on PREHLTH-L, there is information available on the Pre-Health web page. You can access the Pre-Health web page at http://www2.binghamton.edu/pre-health/. On the web page you will find a concise version of some of the material contained in this handbook, as well as a link to a pdf version of this handbook. In addition, there will be links to some of the more important health professions web pages, student organization web pages, a current events section, and a variety of other information.

Another channel of communication is through Facebook. There is a group, Pre-Health Advising at Binghamton, which you can join through your Facebook account. This is a dynamic group which not only provides information about pre-health activities, but also allows you to connect with other pre-health students on campus. It also serves as the archive for information posted on the Pre-Health Listserv.

This handbook addresses the needs of freshman and sophomore students in the areas of curricular information, planning, access to office resources, and related matters. You should read it carefully and review it frequently to insure that you understand its contents. You should retain this copy throughout your first two years at Binghamton University; and many of you may wish to retain it until you graduate. Replacement copies are not available (the Handbook is on the web page as a pdf file).
FRESHMAN YEAR

Introduction

Freshman year presents the challenge of becoming a responsible adult as you adjust to both a new life style and a more difficult academic regime. To make these two major adjustments as uncomplicated as possible, it is important to maintain a balanced course load throughout the year, especially in first semester. Usually this is accomplished by taking two science courses and two non-science courses per semester, though some students' schedules may vary from this. Moreover, keep in mind that a pre-health professions student should get a liberal education, which includes familiarity with the social sciences and humanities. Also, there are a number of college and general education requirements which must be met by graduation. Satisfaction of these requirements depends upon taking a variety of courses during your years at Binghamton University, and it is especially important that you get a good start freshman year. While this may seem a bit confusing now, careful planning, coupled with the fact that many courses will fulfill at least two of these requirements, will allow timely completion of the pre-health requirements, your major requirements, and the college and general education requirements.

Curriculum

This discussion will address the specific courses required for admission to the various doctoral level health professions programs and will suggest ways to plan your schedule so that you have satisfied these requirements at appropriate points during your academic career at Binghamton University. There is, however, a caveat to this discussion, which concerns students majoring in BIOCHEMISTRY, CHEMISTRY, PHYSICS or BIOENGINEERING. These majors have a set of required courses which you must take in a specific sequence. Students contemplating one of these majors should consult the Harpur College of Arts and Sciences Academic Handbook, the Binghamton University Bulletin, departmental publications, departmental web pages, and/or the appropriate faculty advisor to determine these requirements. They should NOT follow the scheduling practices discussed below. In addition, students should review the AP chart and the transfer equivalency tables to avoid duplication of courses. ALL COURSES LISTED BELOW MUST BE TAKEN FOR A LETTER GRADE.

The courses required for admission to doctoral level health professions programs include:

1 year-Biological Science

BIOL 117 and 118.

1 year-Inorganic Chemistry

CHEM 107 and 108 OR CHEM 111 and CHEM 341. You MUST choose one sequence. You may NOT switch between sequences. (Also CHEM 107 MUST be taken in fall and CHEM 108 in spring).

1 year-Organic Chemistry

CHEM 231 and 332 and 335.

1 year-Physics

PHYS 121 and 122 (or 131 and 132).
1 year-English

Any course(s) in the English (ENG), Rhetoric (RHET), Creative Writing (CW), Writing (WRIT) or Comparative Literature (COLI) Departments.

Required by some, but not all, health professions programs.

1 semester-Mathematics

Calculus I (MATH 221)

Although there is a degree of uniformity among the various health professions, some variation in these requirements does occur. These variations are most succinctly represented as follows:

**Medicine**—There are **significant** changes to the subject matter covered on the **2015 MCAT**, which also will be reflected in the admission requirements for 2016 and beyond. **In addition** to the courses listed above, the following topics/coursework will be covered on the new MCAT and required for admission to medical school: BIOL/BCHM 302, PSYC 111, statistics (MATH 147 or MATH 148 or PSYC 243), ANTH 240 or ANTH 243.

**Dentistry**—Some dental schools are now requiring 1 semester of calculus (MATH 221). Many dental schools are beginning to require biochemistry (BIOL/BCHM 302), which is typically taken during spring semester of senior year. Some dental schools may recommend or require microbiology (BIOL 314/326).

**Optometry**—Some optometry programs do not require the second part of organic chemistry (CHEM 332). Most optometry schools require psychology (PSYC 111) and statistics (MATH 147, MATH 148 or PSYC 243). Some programs also require microbiology (BIOL 314/326), and Calculus II (MATH 222).

**Podiatry**—Mathematics is not required.

**Veterinary medicine**—In addition to the courses listed above, most veterinary schools require genetics (BCHM/BIOL 301), microbiology (BIOL 314/326), biochemistry (BCHM/BIOL 302), and statistics (MATH 147, MATH 148 or PSYC 243). Most schools do not require MATH 222. Consult the Pre-Veterinary Handbook on Bb for more information.

**Chiropractic**—Mathematics is not required. Psychology (PSYC 111) usually is required.

**Allied Health**—There are a variety of these programs; the most popular being physical therapy, physicians assistant, occupational therapy, and pharmacy. With the occasional exception of mathematics, most of the courses listed above are required. Moreover, there are a number of additional requirements, which in some cases may equal the ones listed above. If you feel that your interest lies in any of these, you should obtain detailed profession specific information from the pre-health web page by the end of sophomore year.

The best way to understand how these various courses relate to one another and to your overall curriculum is to examine a few sample schedules. These schedules will focus primarily on freshman year, but also will illustrate sophomore year in order to provide for you a more complete picture of your first two years at Binghamton. You will note that CHEM 107-108 is a constant in these schedules.
because many students have found that performance in CHEM 107-108 is a good barometer for future classes. Also, some schedules include idiosyncrasies (e.g. summer courses, transfer courses, AP credit) to illustrate how these may be factored into one’s schedule.

SAMPLE SCHEDULE A

Freshman Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>CHEM 108</td>
</tr>
<tr>
<td>BIOL 117</td>
<td>BIOL 118</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>(Non-science)#</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>CHEM 332</td>
</tr>
<tr>
<td>MATH 221</td>
<td>CHEM 335</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

#It is acceptable to enroll for 12 credits first semester of freshman year.

SAMPLE SCHEDULE B

Freshman Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>CHEM 108</td>
</tr>
<tr>
<td>Non-science</td>
<td>BIOL 118</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>(Non-science)#</td>
<td>Non-science</td>
</tr>
</tbody>
</table>
**Sophomore Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>CHEM 332</td>
</tr>
<tr>
<td>BIOL 117</td>
<td>CHEM 335</td>
</tr>
<tr>
<td>Non-science</td>
<td>Course</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

# It is acceptable to enroll for 12 credits first semester of freshman year.

**SAMPLE SCHEDULE C**

**Freshman Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>CHEM 108</td>
</tr>
<tr>
<td>MATH 221</td>
<td>MATH 148 (see notes p. 3)</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>(Non-science)*</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>CHEM 332</td>
</tr>
<tr>
<td>BIOL 117</td>
<td>BIOL 118</td>
</tr>
<tr>
<td>Non-science</td>
<td>CHEM 335#</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

* It is acceptable to enroll for 12 credits first semester of freshman year.

# May be postponed until fall semester of junior year.
### SAMPLE SCHEDULE D

#### Freshman Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>CHEM 108</td>
</tr>
<tr>
<td>MATH 221</td>
<td>BIOL 118</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>(Non-science)</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>CHEM 332</td>
</tr>
<tr>
<td>BIOL 117</td>
<td>CHEM 335</td>
</tr>
<tr>
<td>Non-science</td>
<td>Course</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

# It is acceptable to enroll for 12 credits first semester of freshman year.

### SAMPLE SCHEDULE E

#### Freshman Year#

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>CHEM 108</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
<tr>
<td>(Non-science)</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>CHEM 332</td>
</tr>
<tr>
<td>Course</td>
<td>CHEM 335</td>
</tr>
<tr>
<td>Non-science</td>
<td>Course</td>
</tr>
<tr>
<td>Non-science</td>
<td>Non-science</td>
</tr>
</tbody>
</table>

# Student has AP credit for BIOL 117-118 and MATH 221.

## It is acceptable to enroll for 12 credits first semester of freshman year.

As you can see from the sample schedules, there are a variety of ways to begin the pre-health course sequence at Binghamton University. The sequence is usually completed by taking physics and
any other courses covered on admissions tests during junior year. Some students may have other required courses to complete during junior year, such as English or organic chemistry laboratory. This is quite acceptable. **However, everyone should have completed all the science requirements (excluding English) by the end of junior year.** The reason for this particular stipulation is that the application process for most doctoral level health professions takes between twelve and fourteen months; the entirety of senior year. In order to participate in the application process, most pre-health students are required to take an admission test in either the spring of junior year or in the summer between junior and senior years, or early in the fall of senior year. If you have not completed the science requirements by then, you will not be able to take the examination required for application, which results in having a one or two year gap between Binghamton and professional school. While some students may elect to postpone entering professional school for personal reasons, most students would not want this alternative forced upon them because of poor planning. Pre-health students should inform themselves of what particular coursework appears on their entry exam and if that differs from the stated admission requirements for their profession. This will assist them in planning their curriculum.

In addition to the required science courses and courses that may be required for your major or for college requirements/general education requirements, there are several non-science courses which pre-health students have found interesting over the years. Chief among these are medical ethics, a variety of biological anthropology courses, and several courses in the history of medicine. Other courses offered by the English, sociology, and political science departments also may be of interest. Please remember that these courses may be fulfilling one or more of your college/general education requirements, so you should feel free to explore non-science areas.

**Summer Session**

Students are often interested in taking required pre-health science courses during summer session. Unless these summer session courses are taken at Binghamton University, you should refrain from such actions. Many professional schools, especially medical and dental schools, frown upon the practice of taking required science courses away from your home institution during the summer, especially if they are taken at community colleges. It is acceptable, however, to take non-science courses or mathematics at home if you need additional credit or have had scheduling difficulties at Binghamton. If you are in a situation where you feel it is absolutely necessary to take a required science at home during summer, you should check with Dr. Langhorne or Ms. Jones first. Also, remember that if you are taking a course at home that is required of your major you will need to get your department's prior approval. For further information, please see "Guidelines for Transferring Credit to Harpur College," which is available on the Harpur College Academic Advising web page. (NB: summer courses taken at Binghamton University should not pose a problem).

**Extra-Curricular and Related Activities**

In addition to questions about academic preparation for the health professions, students often have questions about what non-academic activities will be beneficial to them during their years at Binghamton University. These generally fall into two categories: those perceived as “required” and all others.
“Required”

Generally, the admissions committees at health professions schools expect that you have had some exposure to that profession, other than being a patient, prior to applying. Gaining this exposure can be accomplished in a variety of ways, but it is usually an incremental process occurring over several semesters/years. For example, pre-medical students can begin by being hospital volunteers and perhaps later do a CDC Internship and/or a summer program, the Summer Physician Mentor Program, and/or the Harpur College Binghamton Area Physician Mentor Program. Service in Harpur’s Ferry may also provide exposure.

Pre-dental and pre-optometry students usually begin by observing in their own dentist’s/optometrist’s office and then may branch out into other activities. For example, pre-dental students can do a CDC internship with a local practice or the Binghamton General Hospital Dental Clinic, or a summer program. Pre-optometry students usually try to volunteer in a variety of practice settings and may also do a summer program. Some local optometry practices host pre-optometry students.

It is very important for pre-veterinary students to gain veterinary experience as well as other experiences working with animals. Pre-veterinary students are required to volunteer and/or obtain internship or volunteer experience with a veterinarian. The Ross Park Zoo, which is located in the city of Binghamton, often holds internships for pre-veterinary students through the Career Development Center. Information about these various options can be found elsewhere in this handbook, in the CDC (Career Development Center) office/webpage, and in the science department offices/webpages. Yet another source is online information. This latter source may be most beneficial if you are trying to find summer programs outside the New York State area.

Other

If anything, pre-health professions students tend to underestimate the importance of this category of extra curricular activities, possibly because of its diffuse nature. Nevertheless, health professions schools want to see that you have non pre-health related interests and involvements outside of academics and outside of whatever “required” professional exposure you pursue. What these activities are depends upon what your personal interests, likes, and dislikes are; hence their diffuse nature. They are, however, an important component of what defines you as an individual, and it is very important to maintain a balance between the two types of activities.

In a general sense, you should avoid the “shotgun” approach to these activities. This probably worked for many of you in high school, but the workload and social atmosphere at Binghamton University make this approach difficult. In addition, pursuing activities in this manner will not impress health professions admissions committees in the same way as it did undergraduate admissions offices.

Student Organizations

There are several campus organizations which are oriented towards pre-health professions students. While it is not required that you join any of these, participation may broaden your horizons, provide additional opportunities to you, and enable you to learn from the experiences of upper level students. Included among
these are the following: Harpur’s Ferry Volunteer Ambulance Service, Charles Drew Minority Pre-
Health Society, a pre-veterinary society, a pre-optometry club, and a pre-dental club. There are pre-
health/pre-medical fraternities on campus and one or two other pre-medical clubs.

Office Hours-Freshmen and Sophomores

The Pre-Health Professions Office is located in Academic B Room G18 and is housed within the
Harpur College Academic Advising Office. In order to make your visits to the office more effective, you
should heed the following advice. First, consult the web page (http://www2.binghamton.edu/pre-health/).
There’s a lot of information there, which may answer your questions without a trip to the office.
Secondly, you need to have realistic expectations about the services available in the office, because of
staff shortages. Walk-in hours tend to be crowded and the sign-in lists fill up rapidly. You should plan
to arrive 5-10 minutes prior to the beginning of walk-ins to insure a viable place in line. Once the list
fills, it will be shut down. Remember that the Pre-Health Peer Advisors also have walk in hours and one
of them may be able to help with your questions. Furthermore, please be aware that rudeness to and
abuse of secretarial staff or student workers will in no way hasten the processing of your materials. You
will attract attention, of course, though not necessarily that which will be beneficial to your cause.
Moreover, secretarial staff are unionized employees and are protected from harassment by both
contractual and statutory regulations. Breaches of said regulations are actionable (that is, University
Police will be called if the situation warrants). Finally, please be prepared, to the extent you are able, for
contacts with the Pre-Health Professions Advising Office. The more clearly and quickly we understand
your concerns, the more effectively we can respond to them.

The Pre-Health Professions Office hours are listed below. During certain times of the semester,
such as the first week of classes, these hours will be changed to accommodate higher than normal
student traffic. These altered office hours will be posted on PREHLTH-L, on the Pre-Health Bulletin
Board, and in the check-in area of AB G18. Summer hours differ significantly from these.

General Office Hours

Monday-Friday 10:00 am - 12:00 pm; 1:00 pm - 3:30 pm.
(During these hours you may use the resource area, obtain information sheets, etc.)

Walk-In Hours

Advisor: Tuesday, 1:00 pm - 3:00 pm; Wednesday, 10:00 - 11:30 am
Advisor for Freshman Pre-Health Students: check the chalk board outside of AB G-18,
Facebook or the web site.

Peer Advising Hours

To be announced at the beginning of each semester. Hours are posted on the Pre-Health bulletin
board, the Pre-Health website, the listserv, and in the Pre-Health office.
Appointments

Michelle Jones, Advisor for Freshman Pre-Health Students, will meet with freshman students on an appointment basis. To make an appointment with her, contact the office at 7-6305.

Dr. Langhorne, Pre-Health Advisor, will meet with sophomores-seniors on an appointment basis. To make an appointment, contact the office at 7-6305.

Telephone Calls (7-6305)

The calling hours to speak with the Pre-Health Professions Advisor are:

   Monday – Thursday 9:30-10:00am and 4:00-4:30pm

   Friday 9:30-10:00am

The calling hours to speak with the freshman Pre-Health Advisor are:

   Monday - Friday 9:30 am - 10:00 am and 4:00 pm - 4:30 pm

The calling hours to speak with the Pre-Health Secretary are:

   Monday - Friday 10:00 am – 11:30 am and 12:30 pm - 3:30 pm.

   Please be prepared to explain the purpose of your call to the person answering the phone. Often the questions students have can be handled by the secretary or another staff member, which makes for a more efficient use of everyone's time.

Web Page

http://www2.binghamton.edu/pre-health/

E-Mail

The Pre-Health Professions Advisor can be reached by e-mail at: prhealth@binghamton.edu. The advisor for Freshman Pre-Health students can be reached at mdjones@binghamton.edu. Lynne Datto, Pre-Health Secretary can be reached at: ldatto@binghamton.edu. Please be concise when sending your questions. If you have several, a phone call or a walk-in visit may be more appropriate, since your questions may be related and conversation may bring this out, whereas an e-mail response would not.
To sign onto the Pre-Health Listserv, you will need to send the following message to
LISTSERV@LISTSERV.BINGHAMTON.EDU

SUB PREHLTH-L firstname lastname

Some time later you will receive a welcome message from the listserv with basic instructions regarding usage, etc. If you have any difficulty, please send a message to Lynne Datto, Pre-Health Secretary (ldatto@binghamton.edu) and she will subscribe you manually.

FAX

The fax number for the Pre-Health Professions Office is 607-777-2721.

DARS

It is important that you bring your most recent DARS report whenever visiting the Pre-Health Professions Office to speak with the Advisor. You may print one from the BU Brain at any time.

Student Advisory Committee

The Pre-Health Student Advisory Committee contains 2-3 student members from each of the three upper division classes (sophomore, junior, senior). The Committee meets regularly with the Pre-Health Professions Advisor for discussion and planning on a variety of fronts. Throughout the course of the year, the Committee will conduct programming, publish a monthly newsletter, and pursue any special agenda items which come to its attention. The Committee Members also serve as peer advisors and hold regular office hours in the Pre-Health office. The names and email addresses of the Committee Members are posted on the Pre-Health bulletin board, listed on the Pre-Health web page, appear in each edition of the Pre-Health newsletter and are on the Pre-Health Advising Facebook page. If you have questions about pre-health, you should feel free to contact any member of the Committee. If they cannot answer your question immediately, they will research it and reply to you as soon as possible. Committee members are the only students on campus with sufficient background and access to information to provide timely, accurate responses to you.

Student Conduct

Students are responsible for understanding and abiding by the regulations for both academic and non-academic conduct stipulated in the Binghamton University Student Handbook and in the Binghamton University Bulletin. These guidelines seek to provide an environment in which the rights of all members of the community are protected. Violation of the rules can jeopardize a student’s future plans, particularly since most professions now require disciplinary clearance. Furthermore, we are required to report such infractions to professional schools when you apply. If you have questions regarding this, please contact the Pre-Health Professions Advisor.
Most professions now require an additional disciplinary clearance as well as a criminal background check immediately before you enter professional school. This makes it more important than ever for you to not have a reportable offense in either of these categories.

**A Final Comment**

Everyone is aware, of course, that undergraduate grades are an important criterion for admission to health professions schools. Even more important, however, is the knowledge that is presumably, but not always, implied by good grades. You should strive for understanding; if you are successful, the grades will come automatically. If you get good grades in trivial courses, you will fool no one except yourself.

Furthermore, as you progress through freshman and sophomore years you may discover that your interests and aptitudes lie outside the health professions. You should be open to following these new pathways wherever they may lead. You will not be alone in this divergence, as many of your freshman classmates will be pursuing similar paths. You will, however, be happy and successful in aiming for these new, more personally rewarding goals.
SOPHOMORE YEAR

Introduction

Sophomore year is a transition year in many ways. Some of you will be crossing the boundary into upper level course work, while others will be exploring areas you never knew existed. All of you will be involved in selecting a major and in clarifying your interest in the health professions. Sophomore year also brings with it the continuation and culmination of course work and activities you began during freshman year. Therefore, only topics which are unique to sophomore year or later will be introduced here, since it is assumed that you are familiar with the material presented in the freshman section.

Curriculum

The curricular discussion presented in the freshman section included information about sophomore year. At this time, you also need to consider how to integrate courses from your major into the pre-health schedule. For example, if you are a science major you should be careful not to schedule too many science courses within any given semester. Alternatively, if you are a non-science major, you will have to ensure that you can complete the major by the end of senior year, because the pre-health science courses will not overlap with your major requirements as they would with a science major. (Please remember that “pre-med” or “pre-dental” is not a major).

It is also during sophomore year that those of you pursuing allied health professions programs (e.g. physical therapy, physicians assistant, occupational therapy, etc.) should obtain a detailed list of the requirements for your chosen profession. In the case of more popular professions, some of this information is available on the Pre-Health web page.

Summer Programs

There are a variety of specialized summer programs available for pre-health students. Some of these are offered through medical or dental schools, while others are offered through hospitals, research institutes, or the science departments at Binghamton University and other universities. Most of these programs accept applications from both sophomores and juniors, though some are restricted to juniors.

Summer programs fall into three categories: enrichment, experiential, and research. Enrichment programs provide academic support in strengthening a student's background in the sciences as well as exposure to the student's chosen profession. Experiential programs provide hands-on exposure to a student's chosen profession. While there is usually an academic component to these programs, it is rarely of a classroom nature. Research programs provide students with exposure to scientific research, some of which may be related directly to medicine or another health profession.

The financial support provided by these programs varies. It may be direct (i.e. stipend), indirect (i.e. room and board, transportation, etc.), a combination of the two, or none at all. The deadline for applications is variable also. Some program deadlines are as early as December 1st, while others are as late as March 15th. Further information about summer programs can be obtained from the Pre-Health Newsletter for December, PREHLTH-L, and from the undergraduate bulletin boards and listservs in the science departments. In addition, if you know students who have attended programs in past years, you
will be able to obtain information from them. This information is also available on the website of the host institution.

**Credentialing**

Some summer programs will require that you have a letter of recommendation from the Pre-Health Professions Advisor in addition to one from a faculty member. In order to arrange this, you will need to meet with the Pre-Health Professions Advisor at least once during fall or spring semesters of sophomore year. Please be prepared for your meeting because you will need to accomplish quite a lot in the time allocated to you. Also, remember that requests for letters from the Pre-Health Advisor require at least three (3) weeks advance notice.

It is also important to get to know at least one faculty member, if not two, by the end of sophomore year so that you can ask them for recommendations for these summer programs or for any of the early assurance programs in which you might be interested. This is admittedly a challenging task in an academic environment characterized by large lecture classes and relative anonymity, however, there are ways you can cope with this. Further information can be obtained by contacting any member of the Pre-Health Student Advisory Committee and by being aware of any programming sponsored by the Pre-Health Professions Office and/or the Pre-Health Student Advisory Committee dealing with freshman or sophomore years, since the topic will surely arise then.

Members of the Student Advisory Committee have suggested the following ways of getting to know faculty, even if classes are quite large. While this list is not exhaustive, it contains viable suggestions, especially for new students.

1. Have good attendance, sit near the front of the classroom, and try to sit in approximately the same place each day. Participate in class discussion.

2. Attend office hours regularly with legitimate questions. Attending office hours allows the professor to get to know you, which will prove to be beneficial when requesting letters of recommendation.

3. Complete assignments on time and otherwise demonstrate a good work ethic.

4. Follow up lectures with email questions if you are unable to attend faculty office hours regularly.

**Study Abroad Programs**

Contrary to what you may have heard, it is possible for pre-health students to participate in study abroad programs. However, it requires additional planning for you to do so. If you are interested in spending part or all of junior year or the summer before or after junior year in a study abroad program, you should speak with the Pre-Health Professions Advisor during fall semester of sophomore year. Typically, shifting required courses to summer session and re-configuring regular session will create a time gap within which it’s easy to spend a fall and/or spring semester abroad. Alternatively, as mentioned above, it’s possible to do a study abroad program during the summer. In this instance, limited or no shifting of courses is required, which works best for students in some of the more lengthy

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majors (e.g. biochemistry, neuroscience, etc.).

**National Student Exchange**

An alternative to study abroad programs, which may be of interest to some students, is the National Student Exchange (NSE). Participants in NSE spend up to a calendar year attending another college or university in a different part of the United States, Canada, Puerto Rico, Guam or the US Virgin Islands. Furthermore, because the host universities are all accredited US-Canadian institutions, it is possible to satisfy some pre-health requirements while in attendance, a situation not that common with study abroad programs.

**Junior Year Scholarships**

Over the past few years the Binghamton University Foundation has been the recipient of several donations which have been specifically for the purpose of creating scholarships for pre-medical and pre-dental students. Currently there are two scholarships for a junior pre-medical student (Edward Thorsen Memorial Scholarship, Melvyn H. Novegrod Memorial Scholarship). Students typically apply for this scholarship during spring semester of sophomore year, with the recipient being notified by the end of spring semester. More detailed information about this scholarship, as well as application materials, can be obtained from the Pre-Health Professions web page during spring semester (after March 1st) of sophomore year.

**Transitions**

Junior year is perhaps the most important year for pre-health professions students. During this time you will take an admission test, begin the process of application, and complete your credentials file. In order to provide some advance information to you there is a special **SOPHOMORE MEETING** during spring semester. This meeting usually occurs around the middle of the semester and consists of a brief prepared presentation by the Pre-Health Professions Advisor and members of the Student Advisory Committee followed by a lengthy open period for questions from you. The meeting will be announced on **PREHLTH-L** and through posted notices. In order to be prepared for Junior Year, it is important for you to attend this meeting.

The Sophomore Meeting is first of a series of meetings which will continue through senior year. The most important of these, however, are those held during junior year. To insure that you are informed of these meetings and other events, please remember to subscribe to **PREHLTH-L**.
PRE-HEALTH SPECIAL PROGRAMS

Introduction

There are several special programs available to pre-health students in Harpur College. Some of these are internal to Binghamton University, while others involve an articulation agreement with another university. Although most require that you be a sophomore or junior to participate, there is one in which you may participate as a second semester freshman. Please review this section carefully, so that you are aware of the various programs available to you.

Harpur College Binghamton Area Physician Mentor Program

This program is designed primarily for juniors. It pairs a premedical student with a local alumni physician for the duration of junior year. Students spend two days a month observing and participating in their mentor's daily routine. Program requirements stipulate that participants must be good students overall, that they be from non-practitioner families, and have a GPA of 3.0 or higher. Application occurs at the end of sophomore year. After screening for maturity, integrity, interest, and perceived gain from the program, students are notified of their placement. The program begins in late September with an orientation meeting. For further information, please contact the Pre-Health Professions Office.

Harpur College Summer Physician Mentor Program

The Harpur College Summer Physician Mentor Program is for sophomore and junior students living in the Greater New York City metro area. Applications are available early in spring semester. After screening by a selection committee for maturity, integrity, interest, GPA (3.0 or higher), and perceived gain from the program, students are notified of their placement in early/mid April. The program begins with two orientations held on campus at the end of spring semester. Meeting with your mentor begins in early June, once you have returned home for the summer. For further information, please contact the Pre-Health Professions Office.

Binghamton University-SUNY Optometry 3/4 Joint Degree Articulation Agreement Program

This program allows you to obtain a BA (Biology) degree from Binghamton and an OD degree from SUNY Optometry in seven years, instead of the eight years it normally takes to complete both degrees. You may apply to this program as a high school senior, as a second semester freshman, or as a sophomore. Because of the structured nature of the course work and the short time (three years) you will be at Binghamton if accepted into the program, transfer students are not eligible for the program. The details of the application process are given below.

High School Seniors: To enter the JDP directly out of high school you must be accepted into Harpur College, the undergraduate liberal arts division of Binghamton University. To do this you should apply under the curriculum code for "3/4 Optometry" listed in the master SUNY System application. You must also apply to, and be accepted into, the 3/4 Joint Degree Articulation Agreement Program by completing an application on the SUNY Optometry web site. The selection criteria for acceptance into the program are as follows: an SAT score of at least 1300 (minimum 670 math, 550 verbal) or an ACT
score of 29; a minimum high school grade average of 93/100; and a high school class rank in the top 10% of your graduating class. Once your application is complete, and you meet the minimum academic criteria stated above, you will be evaluated on the basis of maturity, motivation, community involvement, communication and interpersonal skills, interest in optometry, and having a basic understanding of the optometric profession. If you are successful in this screening, you will be invited for an interview, which is the final step in this phase of the admissions process for the program.

**Second Semester Freshmen and Sophomores:** Students interested in the JDP also have the opportunity to apply to the program during second semester of freshman year or during sophomore year. The application procedure and requirements are somewhat different for these students. Like the high school seniors you must complete an application on the SUNY Optometry webpage. The selection criteria for acceptance into the program are as follows: submit SAT score or ACT scores; you must also have a minimum overall gpa of 3.3 and a minimum gpa of 3.3 in all science and math courses. In addition, all science and math optometry pre-requisites must be completed with a grade of C (2.0) or higher. You will also be required to submit an essay and to obtain an evaluation letter from Binghamton University’s Pre-Health Professions Advisor. Once your application is complete, and you meet the minimum academic criteria stated above, you will be evaluated on the basis of maturity, motivation, community involvement, communication and interpersonal skills, interest in optometry, and having a basic understanding of the optometric profession. If you are successful in this screening, you will be invited for an interview, which is the final step in this phase of the admissions process for the program.

**Concluding Remarks:** If you are accepted into the 3/4 Joint Degree Articulation Program, regardless of whether you are accepted directly out of high school or during your freshman or sophomore years, you will be responsible for adhering to several guidelines during your years at Binghamton University. Among these are the following. You must meet at least yearly with a representative of SUNY Optometry. You must meet at least yearly with the Binghamton University Pre-Health Professions Advisor. You must maintain an overall gpa of at least 3.3 and a science and math gpa of 3.3. Furthermore, all science and math optometry pre-requisites must be completed with a grade of C (2.0) or higher (You will be required to submit a transcript to SUNY Optometry on an annual basis). You will be provided with additional guidelines and instructions at the time of your initial (provisional) acceptance into the program whether upon entry into Binghamton University or following freshman or sophomore years.

During the summer between your sophomore and junior years you must file an application to SUNY Optometry through Optomcas. In addition, by December 30 of your junior year you must take the Optometric Admissions Test (OAT) and attain science and academic average scores above 330, with no individual section score being below 320. You must also shadow at least three doctors of optometry, show evidence of community involvement and obtain a positive evaluation from the Binghamton University Pre-Health Professions Advisor. Also, you must submit any other material/information required by SUNY Optometry at this time. Once you have submitted all of this material, and passed preliminary screening, you will be invited for a final interview at SUNY Optometry.
SAMPLE CURRICULUM FOR JDP STUDENTS

Freshman Year

Fall Semester                  Spring Semester
BIOL 117 Introductory Biology  4  BIOL 118 Introductory Biology  4
CHEM 107 Introductory Chemistry 4  CHEM 108 Introductory Chemistry  4
English/Social Science/Humanity 4  English/Social Science/Humanity  4
English/Social Science/Humanity 4  English/Social Science/Humanity  4
                               16  16

Sophomore Year

CHEM 231 Organic Chemistry I  4  CHEM 332 Organic Chemistry II  4
MATH 221 Calculus I          4  CHEM 335 Organic Chemistry Laboratory 2
English/Social Science/Humanity 4  English/Social Science/Humanity  4
English/Social Science/Humanity 4  BIOL ______ *  4
                               16  16

Summer Session

PHYS 121 General Physics I  4  PHYS 122 General Physics II  4

Junior Year

Course                      4  Course                      4
MATH 148 Statistics for Biologists 4  PSYC 111 General Psychology  4
BIOL ______ *               4  BIOL ______ *               4
English/Social Science/Humanity 4  English/Social Science/Humanity  4
Physical Education          1  16
                               17

* Three upper level biology courses must be taken at Binghamton University. Students should select from either BIOL 301 or BIOL 311 AND ALSO from either BIOL 351 or BIOL 355. The third class is of the student’s own choosing. Students may not take histology (BIOL 324), animal physiology (BIOL 331), or neurobiology (BIOL 313).

Binghamton University-SUNY Upstate Medical University College of Medicine Early Assurance Program

This program is open to second semester sophomores only. If accepted, students will be able to spend their last two years at Binghamton without the pressures ordinarily experienced by premedical students during this period of their lives. The criteria for this program are listed below.

1. Applicants must have completed five of eight required premedical science courses, with a
minimum GPA of 3.5 in both science and non-science courses and by the end of sophomore year. Applicants should also have attained a score of 1300 or higher on the SAT (math + verbal) or a score of 29 on the ACT.

2. Applicants must complete an application form and submit it, along with SAT scores, a transcript, a processing fee, and any other required material to the College of Medicine prior to July 1st of their sophomore year.

3. Applicants must complete a credentials file in the Pre-Health Professions Advising Office by June 1st of their sophomore year and have their composite evaluation sent to the College of Medicine.

4. If accepted, students must maintain a normal course load during their remaining two years, complete the pre-medical requirements, perform well overall (i.e. 3.5 GPA or higher), and graduate from Binghamton. In addition, students must take the MCAT by August 31 of the year prior to entry and obtain a score of 30 in one sitting for the exam (they will have two opportunities to accomplish this).

5. Students must commit themselves to attend the SUNY-Upstate Medical University College of Medicine upon completion of their degree at Binghamton.

Students interested in the Upstate EAP should obtain an application from the Upstate web page in spring semester. They should make appointments with the Pre-Health Professions Advisor in fall and spring semesters. During the months of July and August applications and related materials will be examined by the Upstate admissions committee. If you pass this preliminary screening, you will be asked to go to Syracuse for an interview during late August/early September. You will be informed by October 1st of junior year as to whether or not you have been accepted. Questions should be directed to the Pre-Health Professions Advisor or to Upstate Medical (315-464-4570) or (www.upstate.edu).

Binghamton University-SUNY Buffalo School of Dental Medicine Early Assurance Program

This program is designed to assure an undergraduate student an acceptance into dental school after two years of study, thus allowing the completion of the remainder of the four year undergraduate curriculum without concern for admission into dental school. To be eligible for this program a student must have completed two years of undergraduate study (approximately 60 credits) with a GPA of 3.5 or higher in both science and non-science courses and plan to graduate from Binghamton University within two years. Also, they must have completed two of the four required science course sequences. While no specific major is required, the applicant must have completed half of the required pre-dental science course sequences, the English requirement, and demonstrate maturity and a strong motivation for dentistry. Individuals accepted into the EAP will be required to take the DAT (Dental Admission Test) in their junior year and score at least a 20 on the Academic Average, PAT, and Reading Comprehension sections of the test to remain in the program. These scores must be obtained on the same attempt of the DAT. Also, individuals accepted into the program will be required to maintain at least a 3.7 GPA in both science and non-science courses for continuance in the program. The program also requires that participants have over 100 hours exposure to clinical dentistry, either before acceptance into the program or during their last two years at Binghamton. Applications are due June 1st of sophomore year. The
application and credentialing processes for this program are similar to those described above for the two medical early assurance programs except that the deadline for completion of the credentials file in the Pre-Health Professions Office is **May 1st**. Interested students should consult with the Pre-Health Professions Advisor by the end of fall semester. Detailed questions may be addressed to the Advisor or to the School of Dental Medicine (716-829-2839 or 716-829-2862). Applications materials should be obtained from the School of Dental Medicine web site.
SELECTED REFERENCES

Introduction

This section contains a listing of URLs which pre-health professions students may find useful as they progress through their years at Binghamton. Also, ordering information for these books is listed below, should you desire to purchase a copy for your own use. Many are available in both hard copy and electronic versions.

URLS

SELECT WEB SITES RELATED TO THE HEALTH PROFESSIONS

American Assoc. of Colleges of Osteopathic Medicine  http://www.aacom.org
American Association of Colleges of Pharmacy  http://www.aacp.org
American Assoc. of Colleges of Podiatric Medicine  http://www.aacpm.org
American Association of Dental Schools  http://www.adea.org
American Assn. of Naturopathic Physicians  http://www.naturopathic.org
American Veterinary Medical Association  http://www.avma.org
American Dental Association  http://www.ada.org
American Medical Association  http://www.ama-assn.org
American Medical Student Association  http://www.amsa.org/
American Medical Women's Association

American Occupational Therapy Association  http://www.aota.org
American Osteopathic Association  http://www.am-osteo-assn.org
American Physical Therapy Association  http://www.APTA.org
American Podiatric Medical Association  http://www.apma.org
American Podiatric Medical Student Association  http://www.apmsa.org
American Public Health Association  http://www.apha.org/
Association of American Indian Physicians  http://www.aaip.com
Association of American Medical Colleges  http://www.aamc.org
Assoc. of American Veterinary Medical Colleges  http://aavmc.org
Assoc. of Schools and Colleges of Optometry
http://www.neaahp.org

Syracuse Univ. Health Professions Advisory Program
http://www-hl.syr.edu/hpap

Medical School Interview Feedback Page
http://www.med.jhu.edu/meded_feedback/

Medical Student JAMA
http://www.ama-assn.org/msjama

National Science Foundation Summer Opportunities
www.nsf.gov/home/crssprgm/reu/reubio.htm

Organization of Student Representatives (OSR)
http://www.aamc.org/about/osr/start.htm

Summer Research Programs in the Biomolecular Sciences
http://www.medicine.uiowa.edu/biosciences/summerprograms.htm

Undergraduate Biology Science Summer Programs
http://www.faseb.org/ascb/commit/mac/
FREQUENTLY ASKED QUESTIONS

Q: Do I have to be a science major to enter a health professions school?
A: No

Q: Do I have to go directly to professional school upon graduation from Binghamton or can I take time off?
A: No, you may take time off.

Q: Can I be pre-health and study abroad?
A: Yes. See pages 14-15 of this Handbook

Q: What (medical, dental) schools do Binghamton graduates typically attend?
A: For the Binghamton graduating class of 2013, the following professional schools have the most Binghamton alumni in their entering classes.

<table>
<thead>
<tr>
<th>Medical</th>
<th>Dental</th>
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<tr>
<td>NYCOM</td>
<td>NYU</td>
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<td>Einstein</td>
<td>Buffalo</td>
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<tr>
<td>Upstate</td>
<td>Maryland</td>
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<td>Downstate</td>
<td>Stony Brook</td>
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<td>NYMed</td>
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<tr>
<td>St. Georges</td>
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Q: May I take courses in summer school?
A: Yes/No/Maybe. See page 7 of this Handbook.

Q: What courses do I have to take?
A: See pages 2-7 of this Handbook.

Q: What are the add/drop deadlines?
A: The add deadline is the date after which you cannot add more classes to your schedule without special permission. It is typically at the end of the second week of classes in any semester. The drop deadline is the date after which you cannot drop (remove) a class from your schedule without penalty. It is typically at the end of the second week of classes. Furthermore, the withdraw date is typically one week past the mid-point of any semester. Between the drop date and the withdraw date you may withdraw from a class without special permission. However, the class remains on your record and is assigned a grade of “W” (withdraw). After the withdraw date, you will need special permission to
withdraw from a class. In general, obtaining special permission is extremely difficult and usually unlikely unless you have documented extenuating circumstances. If there is a typical mistake made by new students, it’s sticking with a course load which is too heavy and not realizing that you should drop a course before it harms your overall performance. In high school, most of you didn’t have the option of dropping courses or else were able to persevere, so that having the ability to do so in college is not an option you readily recognize and utilize.

Q: Who can I contact for more information?

A: The Pre-Health Professions Advisor, Freshman Pre-Health Advisor, or any member of the Pre-Health Student Advisory Committee. See pages 9-11 of this Handbook.

. . . When in doubt, re-read this handbook to be sure you haven’t missed something . . .