

 <b>School of Pharmacy</b> TEMPLE UNIVERSITY Quality Assurance/Regulatory Affairs <small>Graduate Program</small>	<b>Temple University - School of Pharmacy</b> 425 Commerce Drive, Suite 175 Fort Washington, PA 19034-2713 <b>Phone: 267.468.8560 Fax: 267.468.8565</b>
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**DRUG DEVELOPMENT CERTIFICATE**  
Providing an Overview of the Drug Development Process  
and the Language of the Pharmaceutical Industry

**BACKGROUND**

Regulations governing the pharmaceutical industry at the state, federal, and global levels continue to expand and change. Quality assurance principles are the core of pharmaceutical discovery, manufacturing, clinical trials, and validation processes. Familiarity with the latest trends and current practices in Regulatory Affairs is critical to any industry professional's success.

The *Drug Development Certificate* is specifically designed for pharmaceutical and healthcare professionals who actively contribute to the drug development process or aspire to pursue a career in the pharmaceutical industry. This certificate enables students to explore quality assurance and regulatory affairs as a prospective career path without committing to the entire master's degree. The certificate provides the tools and information needed to understand the basis for new drug discovery, the Federal Food, Drug, and Cosmetic Act, and good pharmaceutical practices as they apply to the clinical, laboratory or manufacturing components of the drug development process.

For nearly four decades, the School of Pharmacy of Temple University has provided outstanding graduate-level course work in Quality Assurance and Regulatory Affairs. The School was the original institution of higher learning in the world to create a master's program in the Quality Assurance (QA) and Regulatory Affairs (RA) disciplines and continues to offer the most comprehensive curriculum of its kind.

Temple's renowned program specifically examines QA and RA issues facing the pharmaceutical and related industries by integrating pharmaceutical law and regulation, pharmaceutical technology, and quality assurance practices. Faculty are industry veterans with years of expertise in their specialities, sharing their vast knowledge with students through intimate classroom discussions and hands-on workshops.

The 36-credit hour QA/RA master's program is based in Fort Washington, PA, with courses also offered in Tarrytown (NY), Frazer (PA), and corporate sites. Classes are conveniently scheduled on evenings and weekends to provide flexibility for working professionals.

To receive the certificate, candidates must complete the required courses and application procedures.

## **ACADEMIC REQUIREMENTS**

1. The ***Drug Development Certificate*** may be earned on its own or on the way to the MS in QA/RA. To earn the certificate, the following four courses must be successfully completed within a three year period with an overall B (3.0) average:

- *Drug Development* (Pharmaceutics 5459)
- *Food and Drug Law I* (Pharmaceutics 5592)
- **One Good Practices course – either**  
*Good Laboratory Practices* (5476) **or**  
*Good Manufacturing Practices* (5477) **or**  
*Advanced GMPs – Defining “c”* (5479) **or**  
*Good Clinical Practices* (5536)
- **One elective from Temple’s QA/RA program**

It is suggested that students take the *Drug Development* or *Food and Drug Law I* class before taking the other classes.

2. All courses must be completed from Temple University’s QA/RA graduate program. No transfer credits from other institutions are accepted.

3. Candidates must formally apply and follow the application procedures stated below (application form, photocopies of transcripts, and notice of completion).

4. Only one certificate program (*Drug Development*, *Clinical Trial Management*, *Medical Device*, or *Basic Pharmaceutical Development*) may be completed before students receive the MS.

5. Students interested in pursuing the QA/RA MS program may apply all credits earned from the ***Drug Development Certificate*** towards their graduate degree, provided they formally apply for admission to the MS program and are accepted by Temple University’s Graduate School.

## **DESCRIPTIONS OF REQUIRED COURSES**

### ***5459. Drug Development (3 credits)***

This course studies the drug development process from discovery through FDA marketing approval. It reviews the process of drug development and the interrelationships linking the various disciplines, introducing students to the regulations governing the process, including interactions with FDA, ICH, and other regulatory agencies.

### ***5592. Food and Drug Law I (3 credits)***

This course examines the governance of intrastate and interstate commerce in foods, drugs, cosmetics and medical devices and the effects of the Federal Food, Drug and Cosmetic Act upon research, manufacture, marketing and distribution of drugs.

**One of the following four GXP courses:**

**5476. Good Laboratory Practices (3 credits)**

This course explores the regulatory and quality assurance issues pertinent to pre-clinical safety research. Research study design and processes will be analyzed in the sciences of pharmacology, toxicology, carcinogenicity, and reproductive toxicology. In addition, some time will be devoted to mutagenicity and pharmacokinetics. These studies will be discussed in the context of developing a safety profile and determining the potential risk to humans in subsequent clinical trials.

**Or**

**5477. Current Good Manufacturing Practices (3 credits)**

This course studies the current Good Manufacturing Practices regulations under the Federal Food, Drug, and Cosmetic Act for drugs and their implication for personnel, buildings, equipment and records; including a study of pertinent legal decisions and regulatory actions.

**Or**

**5479. Advanced GMPs – Defining “c” (3 credits)**

*Prerequisite: Pharmaceutics 487. Students with five or more years of GMP experience may petition the School to substitute this course for Good Manufacturing Practices (Pharmaceutics 5477).*

This course brings students from the basic GMP concepts presented in Pharmaceutics 487 to a fuller understanding of the concepts of current good manufacturing practices. Discussions include how to evaluate FDA 483s and Warning Letters, the routine review of periodicals, including the *Pink Sheet*, *Gold Sheet*, and other GMP-oriented documents, and how to evaluate information provided by the FDA. Recalls are discussed.

**Or**

**5536. Good Clinical Practices (3 credits)**

This course examines the federal regulatory requirements and processes necessary to conduct valid drug trials on human volunteers. Emphasis is placed on managing the clinical drug study and auditing its processes and generated data. The course also addresses ethical issues and volunteer informed consent.

**And**

**One Pharmaceutical QA/RA elective (3 credits)**

For a current list of accepted elective courses, please refer to our website:

[http://www.temple.edu/pharmacy\\_qara/courses-electives.htm](http://www.temple.edu/pharmacy_qara/courses-electives.htm)

**APPLICATION PROCESS**

The ***Drug Development Certificate*** is part of Temple University’s graduate program in Quality Assurance and Regulatory Affairs. It does not require the completion of GREs. To earn the ***Drug Development Certificate***, students must successfully complete the four required courses with an overall B average and formally apply for the certificate. To receive the certificate and letter of completion, students must mail an application form and photocopies of all undergraduate and graduate transcripts (including Temple transcripts for QA/RA courses) to:

QA/RA Graduate Program, Temple University School of Pharmacy  
425 Commerce Drive, Suite 175  
Fort Washington, PA 19034

## **TO RECEIVE THE CERTIFICATE**

After you have finished the four courses, you must notify the QA/RA Office by fax (267.468.8565) indicating that you are eligible to receive the certificate. Please include your name, TUID, courses completed, daytime phone number, and the certificate you have completed.

The QA/RA Office issues certificates in early February, June, and September. In order to receive your certificate in one of those months, you must notify the QA/RA Office by fax **at least one month in advance**. Otherwise you will have to wait until the next time they are processed. The certificate must be completed within three years. Transfer credits are not accepted towards the *Drug Development Certificate*.

## **QUESTIONS AND ANSWERS**

### **Where is the QA/RA program offered?**

Temple University's QA/RA program is based at Temple University Fort Washington in suburban Montgomery County, PA. For directions, visit our website:

[http://www.temple.edu/pharmacy\\_qara/map.htm](http://www.temple.edu/pharmacy_qara/map.htm)

Courses are also offered in Tarrytown (NY), Frazer (PA) and some corporate sites.

### **When can I start the program?**

Courses in the QARA program are offered during the fall, spring and summer semesters every year. You may start the certificate program at your convenience.

### **What course sequence is recommended?**

We recommend you start by taking *Drug Development* (Pharmaceutics 5459) or *Food and Drug Law I* (Pharmaceutics 5592), since these courses provide an overview of the pharmaceutical industry and serve as the foundation of knowledge for the program. You may take the remaining courses in any sequence.

### **How do I obtain a current class schedule?**

Please check the QA/RA homepage:

[http://www.temple.edu/pharmacy\\_qara/schedule.htm](http://www.temple.edu/pharmacy_qara/schedule.htm)

### **How do I register for classes?**

Please download the Registration and State Residency Forms from the QA/RA homepage: [http://www.temple.edu/pharmacy\\_QARA/forms.htm](http://www.temple.edu/pharmacy_QARA/forms.htm)

Both are required the first time you register. Faxed and e-mail registrations do not guarantee your spot in a class, since sections fill quickly. We will contact you if there are problems with your registration. Otherwise you will receive a paperless bill through your Temple email which confirms that you are officially registered.

### **Do I need to submit GRE scores to complete the certificate?**

No. GRE scores are not required for this certificate.

### **When should I indicate that I plan to pursue the certificate?**

You do not need to submit an application to start taking courses. In fact, you may simply complete the four required courses and then submit your application. If you intend to pursue the MS, however, it is important that you complete your application to the MS as soon as possible, so all of your coursework applies to your degree.

**Can I complete both the *Drug Development Certificate* and the Master's Degree in QA/RA?**

Yes! You're welcome to complete both programs, but please be aware that the MS in QA/RA has an entirely different application process and requires GREs. For additional information on the Master's of Science in QA/RA, please request a Program Guide and an application by calling 267.468.8560.

**Can I transfer any credits from another graduate institution towards the *Drug Development Certificate*?**

Sorry, but credits for courses taken at other institutions are not accepted. All four courses must be from Temple University's QA/RA program. It is possible to have a requirement waived; however, another *approved* Temple University QA/RA elective will have to be taken in its place. To waive a course, please submit a letter to the Assistant Dean of QA/RA for approval.

**Will the certificate automatically be awarded when I complete the required courses?**

No. You must formally apply to receive the certificate. This consists of submitting the application form and copies of undergraduate and graduate transcripts from any schools previously attended. You should complete the *Drug Development Certificate* within three years. When you have finished your courses, you must notify the QA/RA Office by fax (267.468.8565) that you are eligible to receive the certificate. The fax must include your name, TUID, courses completed, daytime phone number, and certificate you have completed. You must submit the fax at least one month before certificates are issued (early in February, June, and September). Otherwise you will have to wait until the next time they are processed.

**Can I take other courses in Temple's MS program?**

Temple University allows non-matriculated students to complete only one certificate before pursuing the MS in QA/RA. You may complete the *Drug Development Certificate* and have all of the credits apply towards the MS; however, you must formally apply to the MS program by the time you complete the certificate.

**For additional information:**

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