

Graduate Programs Bulletin 2021-2022



Manchester
University

Manchester University

Graduate Programs

Bulletin

Academic Year: 2021-2022

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Missions and Values Statements

Manchester University Mission Statement

Manchester University respects the infinite worth of every individual and graduates persons of ability and conviction who draw upon their education and faith to lead principled, productive and compassionate lives that improve the human condition.

Arthur L. Gilbert College of Business

Building on the Mission and Vision of Manchester University, the Arthur L. Gilbert College of Business creates a learning environment in which students may acquire and develop the knowledge, experience, skills, and global perspective needed to succeed in their chosen fields of business and in graduate school. The College's learning environment is built on the following values:

- Integrity—developing a strong ethical foundation for making difficult decisions in a complex business environment
- Respect—fostering a culture of collaboration, inclusion, and stewardship
- Excellence—striving to create an atmosphere in which the performance of students surpasses even their own expectations

Master of Athletic Training Program

The Master of Athletic Training Program at Manchester University serves to graduate individuals that incorporate evidence-based, patient-centered care into all aspects of their role as a certified athletic trainer.

Master of Science and Graduate Certificate in Pharmacogenomics Program

The Master of Science in Pharmacogenomics (MS in PGx) Program and Graduate Certificate in Pharmacogenomics (GC in PGx) graduates individuals of ability and conviction who benefit society through the application of pharmacogenomics in precision medicine.

Values Statement

As a primarily undergraduate, residential, liberal arts community rooted in the tradition of the Church of the Brethren, Manchester University values:

- Learning, because high academic expectations in an environment combining liberal arts and professional preparation equip graduates to live healthy, productive and principled lives;
- Faith, because our diverse faiths call us to make the world a kinder and better place, establish justice, build peace amid strife, and model lives of agape (selfless love), tikkun olam (repairing a broken world), and salam (peace);
- Service, because committing self in service to others connects faith with action and abilities with convictions;

- Integrity, because honesty and trust are the foundations of teaching and learning, enriching, enduring relationships, and strong communities;
- Diversity, because understanding differences develops respect for ethnic, cultural and religious pluralism; an international consciousness; and an appreciation for the infinite worth of every person; and
- Community, because a positive community sharpens self-identity, promotes acceptance of the demands of responsible citizenship, and transforms conflict into mutual respect.

Origins and Traditions

Manchester University traces its origin to the Roanoke Classical Seminary founded by the United Brethren Church in Roanoke, Ind., in 1860. The Seminary became Manchester College in 1889, when it was moved to North Manchester, Ind. In 1895, the campus was purchased by representatives of the Church of the Brethren, who deeded it to four state districts of the Church in 1902. The number of supporting districts increased until, by 1932, Manchester served the five-state area of Indiana, Ohio, Michigan, Illinois and Wisconsin.

Rapid growth of the public high school and increasing interest in higher education resulted in a gradual shift of emphasis from an academy and Bible school to a college of liberal arts. The academy was discontinued in 1923.

Mount Morris College in Mount Morris, Ill., merged with Manchester College in 1932. Founded as a Methodist seminary in 1839, Mount Morris had been purchased by representatives of the Church of the Brethren in 1879 and operated as the Rock River Seminary and College Institute until 1884, when the name was changed to Mount Morris College. The merger of Mount Morris College and Manchester College came about when the Church of the Brethren decided its educational program would be strengthened by pooling its resources in fewer colleges. Manchester College became Manchester University on July 1, 2012.

The relationship of Manchester University with the Church of the Brethren continues. The University accents this relationship and welcomes students of all faiths.

Accreditation

Manchester University is accredited by The Higher Learning Commission and has been a member of the North Central Association of Colleges and Schools (230 South LaSalle Street, Suite 7-500, Chicago, IL 60604, 800-621-7440, (www.ncahigherlearningcommission.org) since 1932.

State of Indiana

Manchester University is authorized by name in statute as an approved institution of higher education in the state of Indiana. In full compliance with federal rules, please contact the Indiana Commission for Higher Education following the steps outlined here for Indiana's higher education complaint resolution process.

Athletic Training Accreditation

The graduate level Athletic Training program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE), 6850 Austin Center Blvd., Suite 100, Austin, TX 78731-3101.

Pharmacy Program Accreditation

Manchester University's Doctor of Pharmacy Program is accredited with the Accreditation Council for Pharmacy Education, 2135 South LaSalle Street, Suite 4100, Chicago, IL 60503; 312-644-3575; Fax 312-664-4652; website www.acpeaccredit.org.

Non-Discrimination

Manchester University is committed to non-discrimination in campus life. The University does not discriminate on the basis of national origin, ancestry, race, color, age, sex, gender identity or expression, sexual orientation, familial status, religion, disability, or veteran status in admissions or any area of campus life, including its educational programs, scholarships and loan awards, residence life programs, athletic programs, extracurricular programs, promotion and tenure policies and practices, and alumni affairs.

Manchester University is committed to carry out the positions of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, which provide for accessibility of University programs to the physically disabled.

Administration of Graduate Programs

The Office of Academic and Student Affairs works with the Graduate/Professional Curriculum and Assessment Committee and the Pharmacogenomics (PGx) Council to determine and administer the graduate program policies. The Director of Pharmacogenomics chairs the PGx Council.

Community Behavior Standards

University, College, and program policies help to describe the campus community we are seeking. They offer a rationale for community guidelines, identify the limits of acceptable behavior, call community members to be accountable to each other, and create and maintain a positive community.

There are three principles which form the framework of the policy statement: respect for others, safety and security, and community expectations. As responsible members of the community, students, staff and faculty are expected to support and practice these principles, and the specific policies based on them, and to hold others accountable as well.

These policies apply on University properties – North Manchester and Fort Wayne campuses, including University-owned vehicles, Koinonia Environmental and Retreat Center – and to all students, faculty and staff, as well as guests of the University.

These policies apply year-round – not only when school is in session.

While the policies are designed to respond to behavior on campus, students' behavior off campus is a concern to the University, College and program. The program will take action when behavior has a direct impact on the program environment or on the reputation of the program, or when the behavior is of such gravity that the program would be remiss not to do so.

Consistent with the Missions of Manchester University, members of the Manchester community are expected to demonstrate respect for others and an appreciation for the worth of every person. All members of the University community share responsibility for maintaining a quality campus environment. Ignoring actions or activities that disrupt or violate community guidelines damages our environment and infringes upon the rights of individuals.

Academic Policies

Matters upon which there are no specific policy statements for graduate students are governed by general regulations of the University.

Advising

Faculty and staff of the graduate programs will advise students in the corresponding graduate program area. Students should consult with identified faculty and staff regarding questions about graduation requirements and related matters. Each student has the ultimate responsibility for monitoring his or her own graduation requirements.

Registration

Students must be officially admitted to a graduate program before enrolling in graduate courses. Manchester University reserves the right to cancel classes due to insufficient enrollment. Questions about classes and registration may be addressed to the Office of Academic and Student Affairs for Pharmacy Programs or the Registrar. To qualify for financial aid for online courses, students must register for all course work within the semester before the beginning of the semester, regardless of when the course starts during the semester.

Enrollment Verification

Upon entry into each course, students must verify their enrollment. In on-campus courses, enrollment verification will be completed by the instructor. In online courses, enrollment verification will be completed using a low-stakes assessment or activity in the learning management system.

Transfer of Credit

Master of Accountancy

A maximum of three semester hours of undergraduate credit taken at another regionally accredited college or university may be transferred and applied toward the undergraduate accounting major, provided that such credit is approved by the program director and the

registrar. Graduate credit cannot be transferred, and credit cannot be earned through proficiency examinations.

Master of Athletic Training

A maximum of six semester hours of graduate credit taken at other regionally accredited graduate schools may be transferred and applied toward the MAT, provided that such credit is approved by the appropriate program director and the registrar. Credit cannot be earned through proficiency examinations.

Master of Science in Pharmacogenomics

A maximum of 8.5 semester hours of graduate credit taken at other accredited graduate schools and/or credit for previous learning, may be transferred and applied toward the MS in PGx, provided that such credit is approved by the appropriate program director/faculty, and the registrar. Credit cannot be earned through proficiency examinations. The process for transfer credit consideration must follow the process found in the MS in PGx Student Handbook.

All requests for transfer credit and official transcripts should be submitted to the Registrar no later than one month prior to the start of the academic semester.

If approved, transfer credits are processed by the University Registrar once the semester begins.

Credit for Prior Learning

Only applies to the Master of Science in Pharmacogenomics

Credit for prior learning (CPL) is used to award students credit for demonstrated mastery through experiential learning or other experiences. Students earn college credit for work experience, life experience, independent studies, or licensures and certifications. The maximum number of credits that can be awarded is 8.5 credit hours. The 8.5 credit hour limit includes both transfer of credits and credit for prior learning. The method used to demonstrate mastery of a topic is determined by the course coordinator and course faculty members.

If awarded CPL, the student will receive a grade of "PR" indicating proficiency for the topic. A grade of "PR" does not count towards the GPA of the student. A student does not need to pay for credits earned through CPL.

Student Load

The credit load for a full-time student is 9 credits per semester.

Master of Accountancy

Full-time enrollment in the Master of Accountancy program is 12 or more semester hours per semester. Students may not enroll in more than 18 semester hours in the fall or spring semesters, 16 semester hours in summer, eight semester hours in a single summer session, or

four semester hours in a single January session. Students who have already completed a bachelor's degree at another regionally accredited college or university will work with the program director to develop an individualized plan for completing the required course work.

Auditing Courses

Graduate students may, with permission of the program director, audit graduate courses for no credit or grade. Registration is required and official audits will be recorded on the student's academic record. Audit fees per course are equivalent to tuition and fee charges for credit courses. While not responsible for required course assignments and examinations, students auditing a course are expected to attend class and participate. Changes in status from audit to credit are not permitted.

Repeating Courses

Students receiving a deficient grade in a course may repeat the course one time. Failure to successfully complete a course taken a second time will result in dismissal from the program. The last grade received is counted in the cumulative grade point average. For additional information, contact the Office of Academic and Student Affairs for Pharmacy Programs, or the Registrar.

Course Numbering System

Courses numbered at the 500 and 600 level are open for credit only to graduate students admitted into a graduate program or graduate certificate studies.

Grading System

A four-point grading system is used to compute grade point averages for graduate work. The grading system for graduate courses is noted below.

Grade	Description	Grade Points
A	Highest passing grade	4.00
B		3.00
C	Lowest passing grade	2.00
F	Failure	0.00

Faculty may also designate a course Pass/Not Pass (P/NP) with approval from the Graduate and Professional Curriculum and Assessment Committee. Students may not elect to take a graded courses P/NP. These courses are no included in GPA calculations.

Other grading symbols

I	Incomplete*+ (Temporary grade)
PR	Proficient (Awarded for credits for prior learning, standards outlined above)
NR	Grade not reported*
	(Temporary grade) Course extends beyond the end of semester/session.
UW	Unauthorized Withdrawal (Failure, F)

W Withdrawn Passing
WF Withdrawn Failing (F)

*Work must be completed by the midsemester date of the next regular semester, otherwise, a failure (F) is recorded.

+The course coordinator is responsible for evaluating if an incomplete is appropriate and has the sole discretion to award the incomplete or not.

Change of Registration

On-campus students can make adjustments to their schedules without completing specific paperwork during the first three days of the fall, spring, or summer semester. Online students can make adjustments to their schedules in the first three days of the course. These dates are designated as Change of Course days. Changes made after the official Change of Course days require submission of the Change of Course form to the Office of the Registrar. Students are responsible for ensuring they are properly enrolled in courses.

Withdrawal from a Course

A student may withdraw during the first two-thirds of a course, receiving a grade of W. Withdrawing later in the course will result in a grade of WF. A student who does not withdraw but stops attending class receives a grade of UW. Contact the Office of the Registrar for course withdrawal instructions. See “Student Financial Services” below or contact Student Financial Services for information regarding refunded tuition. For on-campus students, withdrawing from a course will likely result in the student being removed from their cohort relative to graduation from the program. Students may be considered for enrollment in the subsequent years’ cohort, being on an alternate plan of progression.

Incompletes

An incomplete grade may be assigned at the end of a semester when conditions beyond the control of the student preclude completing coursework. In such cases the student must be doing passing work and must be able to complete the unfinished work without further class attendance. Students in on-campus programs must complete required work by the mid-semester date of the next regular semester; otherwise, an F is recorded. Students in online programs must complete required work within one year; otherwise, an F is recorded.

Academic Good Standing

Master of Accountancy

A minimum grade point average of 3.0 is required for good standing in the MACCT program. Any student falling below a 3.0 grade point average will be placed on academic probation for the following semester. If the student does not achieve a 3.0 at the end of the following semester, the student will be disqualified.

Master of Athletic Training

A minimum grade point average of 3.00 is required for good standing in the graduate program. The Program Director will review the academic progress of all graduate students at the end of each semester, January session and summer sessions. Any student falling below a 3.00 grade point average in any term after the first fall semester will be disqualified.

Master of Pharmacogenomics

A student who earns an "F", is placed on academic probation and must meet with the Director of Pharmacogenomics and is allowed to repeat any failed course one time.

A student who falls below a 3.0 grade point average following completion of 6 credit hours will be placed on academic probation for the following 6 credit hours that are completed. Only one period of academic probation for a student will be allowed during the course of study. During the academic probationary period, the student must meet/communicate with the Director of Pharmacogenomics to discuss the probation. If the student does not achieve a 3.0 grade point average upon completion of the academic probationary period, the student will be dismissed from the program.

Dual Degree (MS in PGx and Pharm.D.)

Pharmacy students must maintain academic good standing in the Doctor of Pharmacy program. If a student fails to remain in good standing, they will be dismissed from the MS in PGx program.

Withdrawal from the Program

To withdraw from a program, the student must email the Registrar (registrar@manchester.edu) from their Manchester University email account. Although not required, it is suggested that the student first discuss the withdrawal with the program directors, and that the student copies the Academic and Student Affairs Coordinator for Pharmacy Programs (pharmacogenomics students only) while emailing the Registrar.

Petitions for Special Action

Students who believe extenuating circumstances merit consideration may petition the University Academic Standards Committee for exceptions to stipulated policies and regulations. Action on petitions will be taken only at regular meetings of the University Academic Standards Committee and will not be considered as a precedent for any future action. The decision of the University Academic Standards Committee is final, and no further appeal procedure shall exist within the University.

Academic Dishonesty & Grievance

Membership in the Manchester University community requires a devotion to the highest principles of academic and personal integrity, a commitment to maintain honor, and a

continuous regard for the rights of others. There can be no rights without individual responsibility.

Manchester University faculty are committed to teaching and learning as a career and a profession. Each instructor is presumed to develop and use methods and techniques which enhance learning, and which best fit his or her personality and subject matter area. At the same time, the instructor is expected to abide by the general principles of responsible teaching which are commonly accepted by the academic profession. These principles suggest that faculty keep complete records of student performance and that they develop and apply express, uniform criteria for evaluating student performance.

Students are free to take reasoned exceptions to the data or views offered in any course of study. While they may reserve judgment about matters of opinion, they are responsible for learning the content of any course in which they are enrolled. At the same time, students are expected to abide by the general principles of academic honesty which are commonly accepted in educational settings.

When a student chooses not to follow the general principles of academic honesty, the following policies and procedures will apply.

Academic Dishonesty Policy

The Academic Dishonesty Policy applies in cases of plagiarism or cheating as defined below.

Plagiarism

Plagiarism is the presentation of information (either written or oral) as one's own when some or all of the information was derived from some other source. Specific types of plagiarism encountered in written and oral assignments include the following:

- Sources have been properly identified, but excerpts have been quoted without proper use of quotation marks; or the material has been slightly modified or rephrased rather than restated in the student's own words
- Key ideas or items of information derived from specific sources that present material that is not common knowledge have been presented without proper identification of the source or sources
- Unidentified excerpts from other sources have been woven into the student's own presentation
- A paper or speech may be a mosaic of excerpts from several sources and presented as the student's own
- An entire paper or speech has been obtained from some other source and presented as the student's own
- Texts in another language are translated into English and presented as the student's own

Cheating

Cheating consists of any unpermitted use of notes, texts, screen shots, or other sources so as to give an unfair advantage to a student in completing a class assignment or an examination. Intentionally aiding another student engaged in academic dishonesty is also considered cheating. Submission of the same work (essay, speech, art piece, etc.) to fulfill assignments in separate classes requires the permission of both instructors (if both courses are being taken in the same semester), or the permission of the second instructor (if they are taken during different semesters).

Academic Dishonesty Procedures

In a case of academic dishonesty, the instructor shall send a letter documenting the deception to the student (via e-mail and hard copy to student mailbox or home address), with copies emailed to the Director of the relevant program, and the student's academic advisor if applicable.

- In cases of a first offense, the Director/Dean will contact the instructor to determine if grade sanctions have been applied and if the instructor wishes the University Academic Integrity Committee to review the case and consider additional sanctions. The Director/Dean will send a letter outlining the seriousness of academic dishonesty and the consequences of a second offense to first offenders not going through the University Academic Integrity Committee review
- In cases of a first offense, students who wish to appeal an instructor-imposed sanction may request a University Academic Integrity Committee hearing
- If requested by the instructor in cases of a first offense, or for any subsequent offenses, the chair of the University Academic Integrity Committee will convene a meeting consisting of the committee members, and one graduate student selected by the candidate's program director. The chair will vote only in cases of a tie. The chair will schedule a hearing with the student and the University Academic Integrity Committee/within two weeks of receipt of the tracking form. A registration "hold" will be placed in effect until the hearing has occurred
- Following the hearing the chair will inform the student and the instructor who filed the report of dishonesty of the University Academic Integrity Committee/ decision in writing. The chair will inform the registrar of any action which affects enrollment (i.e. suspension or expulsion)

Penalties

The instructor has the sole discretion to impose specific grade sanctions such as failure of the assignment or failure of the course for any incident of academic dishonesty. When a failing grade for the course is imposed, the student will not be allowed to withdraw from the course with a grade of W.

- For a first referred offense, the University Academic Integrity Committee has the discretion to impose disciplinary sanctions such as a letter of apology, monetary fine or

community service requirement in addition to any grade sanction imposed by the instructor

- For a second or subsequent offense, a University Academic Integrity Committee hearing will occur, whereby additional sanctions up to and including suspension or expulsion from the University could be applied

Due Process

Students shall have a right to due process. This shall include the right:

- To be informed of the nature of the violation
- To a fair hearing of the evidence leading to a decision in the case
- To be accompanied to any hearing by a faculty or administrative staff member from the University campus community
- To request an appeal based only on due process or new, exculpatory evidence

Appeal

An appeal for an academic dishonesty decision may be made ONLY with the vice president of academic affairs and ONLY on the basis of due process violations or the discovery of new, exculpatory evidence. A request for appeal must be made with the vice president of academic affairs within five days of receipt of the University Academic Integrity Committee/ decision.

Academic Grievance Policy

The Academic Grievance Policy pertains only to cases in which a student believes the final course grade has been assigned in a capricious or unfair manner. Grievances unrelated to academic performance may be brought directly to the Office of Academic and Student Affairs (PGx and MAT Students) /Office of Academic Affairs (MACCT students).

Academic Grievance Procedures

- The student and the instructor should discuss the student's grievance and make every effort to reach a satisfactory solution. A mutually agreed upon third party may be invited to observe the meeting
- If an agreement cannot be reached, the student will bring the issue to their program director. Final course grade grievance must be brought before the director no later than March 1 for fall semester and January session grades, and October 1 for spring semester and summer session grades
 - The program director will request a detailed written summary from each party
 - The program director will inform the vice president of academic affairs of the grievance
 - The program director will meet with both parties together, listen to their concerns and attempt to resolve the grievance
 - If an agreement is reached, the program director will inform the vice president of academic affairs of the result in writing. The written summaries will be

forwarded to the Office of Academic and Student Affairs/Office of Academic Affairs

Exception: If the involved instructor is the program director, the program director will request that the vice president of academic affairs appoint another graduate program director to hear the concerns and attempt to resolve the grievance.

- If an agreement cannot be reached through the program director, the student may initiate the formal grievance procedure
 - The student will obtain an Academic Grievance form from the Office of Academic and Student Affairs/Office of Academic Affairs
 - The completed form will be forwarded by the student to the Office of Academic and Student Affairs/Office of Academic Affairs
 - The University Academic Standards Committee (or their designated representative) will review the grievance only if procedures 1 & 2 have been completed. The written summaries initially provided to the program director can be used by the University Academic Standards Committee, and/or the committee may wish to interview both parties individually
 - The University Academic Standards Committee will render a final decision

Exception: If the involved instructor is a member of the University Academic Standards Committee, the vice president of academic affairs will appoint a full-time faculty member from the same division to replace the involved instructor while the grievance is being reviewed or discussed, and a decision is being made. If the involved instructor is the academic dean, the chair of the University Academic Standards Committee will request that the president of the University appoint a full-time faculty member to replace the vice president of academic affairs while the grievance is being reviewed or discussed, and a decision is being made.

Professionalism Expectations and Procedures

Professional Behavior

All individuals are expected to behave professionally. Unprofessional behavior includes any act or omission that is unethical or improper, and/ or in violation of any local, state, or federal laws and regulations. This includes unlawful or untoward actions that may result from substance abuse, including but not limited to unlawful and unauthorized manufacture, distribution, dispensation, possession or use of narcotics, controlled substances, illicit drugs or alcohol.

Unlawful and illicit for these purposes means in violation of federal, state or local regulations, policy, procedures, and rules, including legal statutes. Educational setting means University or College operated buildings and grounds or while conducting University or College business away from the actual premises, including experiential or service- learning sites. Professional activities relate to professional meetings.

Students are expected to demonstrate professionalism and integrity during class in service settings and in their personal lives. Whether attending a meeting, going to a continuing education program, or participating with other organizations, you are representing the

Program, College, and University at all times. Strive to be the example that others may look up to and emulate.

Civility

An environment conducive to learning depends on behavior of mutual respect among students, faculty, administration, and staff. The Program does not tolerate disrespect or lack of civility toward any member of the College community. Lack of civility includes inappropriate verbal, written, or e- mail remarks that disrespect, harass, discriminate, intimidate or demean the character of another individual.

Professionalism Violation Procedures

In a case of a professionalism violation, the instructor shall send a report documenting the deception to the student (via e-mail), with copies emailed to the program director, and the chair of the University Academic Integrity Committee.

Penalties

The instructor has the sole discretion to impose specific grade sanctions such as failure of the assignment or failure of the course for any unprofessional behavior. When a failing grade for the course is imposed, the student will not be allowed to withdraw from the course with a grade of W.

- For a first referred offense, the University Academic Integrity Committee/has the discretion to impose disciplinary sanctions such as a letter of apology, monetary fine or community service requirement in addition to any grade sanction imposed by the instructor
- For a second or subsequent offense, a University Academic Integrity Committee hearing will occur, whereby additional sanctions up to and including suspension or expulsion from the University could be applied

Preparation for Graduation and Participation in Commencement

Degrees are conferred at the end of the semester following the completion of the required credit hours. Diplomas are awarded at the May commencement.

No diploma or transcript will be released until all financial obligations to the University have been met.

Time Limit

Master of Athletic Training: All requirements for the MAT degree must be completed within three years of admission to the program or the date of enrollment in the first graduate course at Manchester University, whichever is later.

Master of Science in Pharmacogenomics: The on-campus program must be completed within two years of the start date of the program. The online program must be completed within five years of the start date of the program.

Graduate Certificate in Pharmacogenomics: The academic certificate must be completed within two years of the start date of the program.

Enrollment Status

An on-campus student must complete fifty-one percent (51%) or more of the MS in PGx course work on campus.

An online student must complete fifty-one (51%) or more of the MS in PGx course work online. Online students in the MS in PGx program will be automatically withdrawn from the program if the student does not complete any course work during five (5) consecutive half-semester. If a student is automatically withdrawn from the program, the student is eligible to return to the program, but must reapply using the Admission Process outlined above.

A student may change their enrollment status from online to on campus or from on campus to online one time during the duration of the program, if needed. The request to change enrollment status is processed by the PGx Council, following the submission of the request to the Director for Pharmacogenomics.

Student Services

Financial Aid

Students must file the Free Application for Federal Student Aid (FAFSA) for consideration for student loan eligibility. Questions about financial aid should be addressed to Student Financial Services, Manchester University, 604 E. College Ave., North Manchester, Indiana 46962. Phone: 260-982-5066.

Financial Policies

Payment of University Charges

Semester payments are due May 1 for the summer session, August 1 for the fall semester, and January 1 for the spring semester.

Methods of payment accepted include:

- Online Payment Options through the Student Account Center
Students can access the Student Account Center through ChetNet. Parents/others that have been added as an Authorized User can access through the Student Financial Services website. www.manchester.edu/sfs/payments
- Electronic Check. Make payment online using an e-check. There is no fee for this service

- Credit or Debit Card:
 - Make a payment online using a Visa, MasterCard, Discover, or American Express card. Please note that a convenience fee of 2.85% or a minimum of \$3.00 (whichever is greater) will be charged by Pay Path for the processing of credit or debit card payments. Manchester University does not receive any portion of this non-refundable fee
- Monthly payment option – Manchester University offers Spartan Payment Plans for interest-free, monthly payments. Yearly and semester only plans are available. Student and parents will enroll through the Student Account Center. Full details are available at the [Spartan Payment Plans](#) website
- Check or money order payable to Manchester University, mailed to:

Manchester University
Attention Student Financial Services
604 E. College Ave.
North Manchester, IN 46962
- In Person payment - Check, cash, or money order Payments can be made Monday through Friday, 8 a.m. to 5 p.m. in the Student Financial Services office located in **Chinworth Suite 103** on the North Manchester Campus

Students with unpaid balances may lose current enrollment and will not be allowed to register for any subsequent terms. Transcripts and diplomas are withheld from those who have not settled their financial obligations to Manchester University, which may include collection fees, attorney's fees, and court costs.

Students are not fully registered, nor will they have the privilege of class attendance or use of University facilities until their charges are paid. A service charge of 1.5 percent or \$30, whichever is greater, may be added to any unpaid balance in the student account as of the last working day of each month.

Refund of Tuition/Fees

In the case of official withdrawal from the University, a refund, less a cancellation fee, is made according to the following schedules:

On campus Master of Athletic Training fall and spring semester refund schedule:

- Withdrawal before the official start of classes: 100 percent refund
- Withdrawal during Change of Course days: 100 percent refund less \$250 cancellation fee
- Withdrawal during the first and second weeks (4-10 class days): 75 percent refund
- Withdrawal during the third and fourth weeks: 50 percent refund
- Withdrawal during the fifth and sixth weeks: 25 percent refund
- Withdrawal after the sixth week: NO REFUND

On campus Master of Athletic Training summer semester refund schedule:

- Withdrawal before the official start of classes: 100 percent refund
- Withdrawal during Change of Course day: 100 percent refund
- Withdrawal during class days 1 - 4: 75 percent refund
- Withdrawal during class days 5 - 8: 50 percent refund
- Withdrawal during class days 9 - 12: 25 percent refund
- Withdrawal after class day 12: NO REFUND

On campus Pharmacogenomics summer, fall and spring semester refund schedule:

- Withdrawal before the official start of classes: 100 percent refund
- Withdrawal during first three (3) days: 100 percent refund less \$250 cancellation fee
- Withdrawal during the first and second weeks (4-10 class days): 75 percent refund
- Withdrawal during the third and fourth weeks: 50 percent refund
- Withdrawal during the fifth and sixth weeks: 25 percent refund
- Withdrawal after the sixth week: NO REFUND

Online Pharmacogenomics Program summer, fall and spring semester refund schedule:

- Withdrawal or drop before the official start of classes: 100 percent refund
- Withdrawal or drop days 1 - 7 calendar days: 75 percent refund
- Withdrawal or drop on or after day 8: NO REFUND

Return of Title IV Funds - Graduate and Professional Programs:

Students who receive Title IV aid (Direct Loans and Direct PLUS Loans) and completely withdraw from the University are subject to the Return of Title IV Funds calculation, as mandated by the Department of Education. The Return of Title IV Funds calculation is different from the University's refund calculation; therefore, a student who withdraws before completing 60 percent of a payment period may owe the University for charges no longer covered by returned federal aid.

Under the Return of Title IV Funds calculation, the amount of Title IV aid a student has earned is determined by the percentage of days enrolled during a semester. This percentage is determined by dividing the number of days enrolled by the number of calendar days in the semester, including weekends and holidays. The student may retain the amount of aid earned. Any aid not earned will be returned to the appropriate programs. Once the attendance percentage has reached 60 percent, all Title IV aid is considered earned.

The date of a student withdrawal is determined by the University as follows:

- The student began the prescribed official withdrawal process in the Student Success Center
- The student otherwise provided the school with official notification of the intent to withdraw; or

- For “unofficial withdrawals”, the last date of attendance or the last date of participation in a class as determined by faculty. If no date can be documented, then the midpoint of the semester for which Title IV aid was disbursed will be used

The federal return of funds policy requires that Title IV funds be returned in the following order:

Unsubsidized Federal Direct Loans
Subsidized Federal Direct Loans
Federal Direct PLUS Loans

The return of Title IV unearned funds will be completed no later than 45 days after the date of the school’s determination the student withdrew.

Post-Withdrawal Disbursement

If Title IV aid has been earned by the student, but not disbursed prior to withdrawal, the student is entitled to a post-withdrawal disbursement. Manchester University will request the student’s permission prior to disbursing the loan funds to the student’s account. A letter will be emailed to the student’s personal email address of record within 30 days of the date of determination the student withdrew, requesting that the student provide authorization in writing to disburse the funds. We ask that you respond within 14 days of receiving the letter to inform us if you want to accept the funding. If we do not receive a response, we are not required to make the post-withdrawal disbursement.

Payment of Refunds

Refunds are distributed according to the guidelines governing refunds for each source of funds drawn upon to pay educational costs, including any or all Federal Title IV funds.

Information Technology Services (ITS)

The graduate programs incorporate a great deal of information technology. The Canvas support system can answer any questions relating to the learning management system. Information Technology Services department supports all computer and network technology for the program. The following is the contact information for these services:

Canvas Support

For assistance with Canvas, please use the Canvas Support system.

Email: canvashelp@manchester.edu

Chat: available within Canvas, located in the menu bar

Phone: 1-877-227-9487

Help Desk Contact Information & Hours

For assistance with computer software or services provided by Manchester University (including password retrieval), please contact the Information Technology Services (ITS) Help Desk using one of the methods below.

Please note that a request for ITS help can be made at any time (24/7) using the ticket submission system. The link to the ticket submission system is located below, and within every Canvas course. The tickets will be monitored at all times and responded to within 12 hours of the ticket submission. This includes times that the Help Desk is closed.

		Response Time
Web:	https://service.manchester.edu	
To submit a ticket:	https://service.manchester.edu/incidents/new.portal	Within 12 hours of ticket submission
Email:	helpdesk@manchester.edu	Varies
Phone:	1-260-470-2727	Immediately, if available Hours are Monday-Friday, 8am – 5pm EST

Library Resources

The library provides materials to serve the University curriculum, bibliographic and interlibrary loan support for research and instruction in the use of information sources. Library services are available on site, as well as online through the Funderburg Library website (www.manchester.edu/Library)

The Drug Information Center on the Fort Wayne campus provides a print and electronic library collection that students may use. Students will be able to use the electronic collection within the main library website and will also have access to a designated page specifically for the program coursework. The print collection will be housed in the Drug Information Center as reference material.

Campus Communication

The Manchester University email address is the official method of electronic communication with all students.

Campus Policies

Manchester University has policies and guidelines that define the actions of the University community and govern both the rights and the expectations of its members. *The Source*, the student handbook, provides a listing and rationale for all policies that apply to members of the University community. More details are available at: [www.manchester.edu/ img/thesource.pdf](http://www.manchester.edu/img/thesource.pdf).

Students who seek admission should be aware of University regulations and be prepared to abide by these policies while enrolled at Manchester University.

The University reserves the right to dismiss or suspend any student at any time when, in the judgment of University authorities, such action is advisable. Upon registration at Manchester University, the student expressly concedes this right to the University. It is understood that attendance at Manchester University is a privilege, not a right, and that this privilege may be withdrawn in the case of any student who does not adhere to the objectives or policies of Manchester University.

Health Records

All undergraduate and graduate first-year and transfer students are required to submit a medical history. Medical information is strictly confidential and is used to provide the appropriate care for the student when needed. The Health History Form is sent to the student from the Office of Health Services prior to enrollment. The form can be found on the medproctor.com website. The completed Health Record form must be on file with the University prior to the start of first semester classes.

Required vaccinations: MMR-Measles (series of two), Meningococcal or Menactra® or MCV4- (series of two), Meningococcal B (series of two), TDap/tetanus/diphtheria (within the past 10 years), Covid-19 Vaccination (recommended but not required), Flu Vaccination (recommended but not required).

INTERNATIONAL STUDENTS ONLY: Tuberculosis screening test or QuantiFERON Gold Blood test (must be less than 12 months old).

Privacy and Student Records

Manchester University collects, records and uses information about students to carry out its educational mission. The University recognizes its responsibility for protecting the privacy rights of students regarding their academic and personal records. Students are provided access to information contained in their own official education records, a procedure for correction or deletion of inaccuracies found in their records, and a degree of control over the release of information from their records.

Certain items of personal information are considered directory information and may be published without students' permission. These include dates of attendance, degrees earned, local and home address, e-mail address, phone number, major, participation in officially recognized activities and sports, height and weight and honors received.

A student has the right to request in writing, prior to the first day of classes of any semester, that any item listed as directory information not be released without his/her consent.

Procedures for student access to records may be obtained from the Office of the Registrar.

Master of Accountancy

The Master of Accountancy (MACCT) is an integrated 3/1 program, designed for exceptional students interested in earning a bachelor's degree and a master's degree in four years. The MACCT is housed in the University's Arthur L. Gilbert College of Business.

Among other things, the program prepares students to sit for the Uniform CPA examination and to enter the public accounting profession. In the third and fourth years of the program, students will enroll in both undergraduate and graduate courses, and both the bachelor's and master's degrees will be awarded at the end of the fourth year. Students who have already earned a bachelor's degree and wish to earn the MACCT will work with the program director to develop an individualized plan for completing the degree.

Admission Requirements

Manchester undergraduate students applying to the program must have earned a 3.3 cumulative GPA and must have completed the following courses with a minimum grade of B (3.00/4.00):

- BUS 310 Business Information Systems
- BUS 313 Business Law I
- FIN 333 Principles of Finance
- ACCT 311 Intermediate Accounting I
- ACCT 312 Intermediate Accounting II
- ACCT 321 Managerial and Cost Accounting
- ACCT 331 Introduction to Taxation
- DATA 210 Statistical Analysis

Students who have already completed a bachelor's degree at another regionally accredited college or university must have earned a 3.3 cumulative GPA and must have completed the equivalent of the Manchester courses listed above with a minimum grade of B (3.00/4.00). These courses must be approved by the program director and the registrar, and Manchester may require the submission of course descriptions and/or course syllabi if there are questions about the equivalency of the completed courses.

Regular Admission

Applicants who meet all of the admission requirements will be awarded regular admission status.

Conditional Admission

A student who does not meet all of the admission requirements but shows evidence of being capable of succeeding in the program may be admitted conditionally, in which case the program director will provide the student with a written statement of the conditions which must be satisfied.

Degree Requirements

To earn the MACCT, students must complete the following undergraduate bridge and master's-level courses.

<i>Course Number</i>	<i>Course Name</i>	<i>Credit Hours</i>
ACCT 435	Government and Nonprofit Accounting	3
ACCT 422	Advanced Managerial Accounting	3
ACCT 485	Seminar	3
ACCT 453	Accounting Ethics	3
BUS 414	Business Law II	3
ACCT 515	Accounting Research	3
ACCT 523	Data Analytics	3
ACCT 531	Advanced Taxation	4
ACCT 551	Advanced Accounting	3
ACCT 509	Advanced Auditing	3
BUS 525	Advanced Business Information Systems	3
		34

Students must maintain a cumulative grade point average of at least 3.0 and must earn at least a 2.0 (C) in each required bridge and master's-level course.

Master of Accountancy Course Descriptions

Bridge Courses

ACCT 422 Advanced Managerial Accounting - 3 hours

Students examine advanced accounting methods that assist an organization with planning and control. Emphasis is placed on the managerial accountant as a business partner in an organization. Topics include quality costs, transfer pricing, performance measurement and current topics in managerial accounting. *Prerequisite:* ACCT 321.

ACCT 435 Government & Nonprofit Accounting - 3 hours

Students learn the basic principles and procedures of financial accounting for state and local governments and nonprofit organizations. *Prerequisite:* ACCT 311.

ACCT 453 Accounting Ethics - 3 hours

Students examine various ethical theories and their application to ethical dilemmas within the accounting profession. In addition, students will develop strategies to address and resolve ethical dilemmas. Topics include actual ethical dilemmas and codes of ethics from accounting bodies such as the AICPA.

ACCT 485 Seminar - 3 hours

An in-depth consideration of a significant scholarly problem or issue. Students pursue a supervised, independent inquiry on an aspect of the topic and exchange results through reports and discussion.

Fraud Examination

Students examine cases of fraud, including fraudulent financial reporting and asset misappropriation schemes. Further, students will gain an understanding of the fraud triangle and develop skills in analyzing each of the components in an effort to better detect organizational fraud and identify recommendations for future prevention.

BUS 414 Business Law II - 3 hours

Students continue the examination of the legal environment in which businesses operate. Topics include business organizations, agency, debtor/creditor relations, secured transactions, and securities law. *Prerequisite:* BUS 313.

Master's Courses**ACCT 509 Advanced Auditing - 3 hours**

Students advance their understanding of audit theory and practice through hands on application of auditing procedures such as planning and accepting engagements, evaluating internal controls, obtaining evidence to form conclusions, and preparing communications to satisfy engagement objectives. *Prerequisite:* ACCT 409

ACCT 515 Accounting Research - 3 hours

Students conduct research and develop advanced critical thinking skills through analysis and reporting of research findings. Students will research issues in technical accounting, tax and audit topics.

ACCT 523 Data Analytics - 3 hours

Students will develop skills in gathering large amounts of financial and nonfinancial data, converting that data into useful information, and formulating conclusions for decision making. Students will practice various data analysis techniques and analyze information in financial accounting, auditing, and other accounting areas.

ACCT 531 Advanced Taxation - 4 hours

Students explore advanced taxation topics, principally in the area of corporate taxation. Topics include property transactions, like-kind exchanges, and taxation of corporations, S corporations, and partnerships.

ACCT 551 Advanced Accounting - 3 hours

Students explore complex issues in financial accounting. Topics include accounting for partnerships, consolidations and business combinations, foreign currency transactions and translations, segment and interim reporting.

BUS 525 Advanced Business Information Systems - 3 hours

Students explore the intersection of accounting information systems, business processes and decision making. Hands on application of all phases of the systems development life cycle will be a focus of this course. Topics include internal controls, risk management and using emerging technologies to add value to business organizations.

Master of Athletic Training

The Master of Athletic Training (MAT) degree is designed to prepare students to become certified athletic trainers (ATC). Athletic trainers are health care professionals who collaborate with physicians to optimize activity and participation of patients and clients. Athletic training encompasses the prevention, diagnosis, and intervention of emergency, acute, and chronic medical conditions involving impairment, functional limitations, and disabilities.

The MAT program is designed for students with minimal knowledge and experience in athletic training. Individuals who are graduates of CAATE-approved programs are not eligible for admission. Upon successful completion of all clinical and didactic components of the MAT program, students are eligible to take the Board of Certification (BOC) examination in athletic training. Passing the BOC examination leads to awarding of the credential ATC.

The mission of the MAT is to prepare individuals who are educationally well-rounded, critical thinkers, good citizens, and active professionals, as well as competent allied health professionals. The program's goal is to prepare qualified athletic trainers for the profession of athletic training and is guided by these objectives:

- To produce quality athletic training professionals for potential employment in appropriate health care settings
- To prepare students to pass the BOC examination in athletic training through a CAATE-accredited education program
- To promote professional and ethical conduct at all times
- To provide an exemplary classroom and clinical learning environment in which students can develop appropriate evidence-based clinical knowledge and skills for an entry-level athletic training professional

Admission Requirements

Students applying for admission to the Master of Athletic Training program must meet the following minimum requirements:

- Baccalaureate degree from a regionally accredited institution
- A 3.0 cumulative undergraduate grade point average
- Completion of the published Technical Standards for the program
- Completion of Manchester University Health Form and vaccination record
- Completion of each of the following undergraduate courses with a minimum grade of C (2.00/4.00):
 - Human Anatomy with lab (Lecture and lab = at least 4.0 semester hours)
 - Human Physiology with lab (Lecture and lab = at least 4.0 semester hours)
 - Exercise Physiology with lab (Lecture and lab = at least 4.0 semester hours)
 - One course in chemistry (any level)
 - One course in physics (any level)
 - Biomechanics/Kinesiology

- Nutrition
- Principles of Fitness and Exercise Prescription
- General Psychology
- Statistics

Application

Manchester University employs a “rolling” application and admissions process for the MAT program. Applicants for the 2022 cohort may submit their application materials through ATCAS™ any time after July 1, 2021. When an application is received the applicant’s record is immediately reviewed by the admissions committee. If most entrance requirements are met, an in-person or video interview will be scheduled. The admissions committee will then convene, and the admission decision will be communicated to the applicant soon after the completion of the interview. **Any offer of admission is contingent upon completion of an undergraduate degree and completion of the MAT program prerequisites (see Conditional Admission below).**

In addition to the admission requirements listed above, students who earned their degree(s) outside the United States must submit all relevant documentation to World Education Services, Inc. (WES) for evaluation and interpretation. Students should request that WES perform a course-by-course evaluation, and they should have a report sent directly to Manchester University at the following address: For PGx: Dean of Pharmacy and Graduate Life Sciences , Manchester University, 10627 Diebold Rd, Fort Wayne, IN 46845. For MAT: Dean of Health Professions, 10627 Diebold Rd, Fort Wayne, IN 46845. Information about WES can be found at www.wes.org. Students are responsible for payment of fees to WES (not Manchester University) for this service.

Admission Status

Regular Admission:

Applicants who meet all of the admission requirements will be awarded regular admission status.

Conditional Admission:

Conditional admission may be awarded under the following circumstances:

- Student does not meet regular admission standards but shows evidence of capability to achieve success in the graduate program
- Student’s academic background indicates that additional undergraduate course work is warranted before or concurrent with enrollment in graduate classes

Some students may be admitted to the MAT program prior to the completion of all prerequisite courses.

In the event an admitted student does not complete the prerequisite course/s with at least a C within the first year after admittance, the student will be required to meet with the Program Director and may be required to repeat the prerequisite course/s at his or her own expense.

Special Admission

A student who does not intend to work toward a graduate degree at Manchester University but who wishes to take (a) course(s) for graduate credit may apply for admission as a special student. A maximum of six semester hours may be earned as a special student. To be admitted the applicant must hold a baccalaureate degree from a regionally accredited institution by September 1 of the year of admission as a special student and have permission of the program director.

Readmission

Students who wish to be readmitted to a graduate program after a period of inactivity - defined as one semester or more - must meet with the program director. Readmission decisions rest with the respective program director, pending approval from Student Financial Services.

Retention Policy

The MAT program has a retention policy in place in the case that a student falls below a specific academic standard. The retention policy of Manchester's Graduate Athletic Training Program is as follows:

A minimum grade point average of 3.00 is required for good standing in the graduate program. Students whose academic performance falls below this level after the student's first Fall Semester, will be given until the end of the same semester in the subsequent academic year to improve their GPA. The Program Director will conduct a review of academic process at the end of each semester or session (fall, January, spring, summer).

Repeating Courses

Courses counted toward a MAT degree completion may be repeated a maximum of one time.

Petitions for Special Action

Students who believe extenuating circumstances merit consideration may petition the Academic Standards Committee for exceptions to stipulated policies and regulations. Petitions must be in writing and are to be filed with the appropriate program director. Action on petitions will be taken only at regular meetings of the committee and will not be considered as a precedent for any future action. The decision of the committee is final, and no further appeal procedure shall exist within the University.

Clinical Experience Hours Policy

Each student is responsible for the accurate and timely reporting of clinical hours on Core™. Clinical hours should NOT be recorded for travel time to and from clinical sites and other clinical education experiences.

Students are responsible for reporting their hours to the nearest quarter of an hour, noting the day of the week and the clinical assignment. The students should update their clinical hours record at least once a week in order to ensure accuracy. Students engaged in clinical rotations must have one day off from clinical education responsibilities in every seven-day period.

There is no mandatory total number of clinical hours required for completion of the athletic training program.

Athletic Training Student hours are verified and reviewed weekly by the assigned preceptor and Clinical Education Coordinator. Failure to comply with the appropriate recording of clinical hours will result in deduction of points from the corresponding Clinical Experience course. Fabrication of clinical hours will result in disciplinary action consistent with the program's academic dishonesty policy.

Documentation of clinical time will be recorded by the student on Core™, verified by the preceptor, and maintained by the CEC. It is the student's responsibility to record hours on Core™.

Degree Requirements

To earn the MAT degree, students must complete the following:

- Maintain a cumulative grade point average of at least 3.00
- Earn at least a 2.00 (P, C) in each required course
- Complete all required didactic and clinical courses

Master of Athletic Training 2-Year Plan of Study

Master of Athletic Training Curriculum, Implemented Fall 2021 – Current

<i>Course Number</i>	<i>Course Name</i>	<i>Credit Hours</i>
Semester 1: Fall		
ATTR 502	Clinical Practice I	5
ATTR 521	Immediate and Emergency Care	2
ATTR 531	Injury Classification & Management	2
ATTR 512	Clinical Skills I	2
Semester 2: January		
ATTR 563	Pharmacy Principles for Athletic Trainers	2
Semester 3: Spring		
ATTR 506	Clinical Practice II	5
ATTR 526	Musculoskeletal Assessment I	3
ATTR 536	Musculoskeletal Assessment II	3
ATTR 522	Clinical Skills II	2
Semester 4: Summer		
ATTR 643	Healthcare Administration	2
ATTR 633	Medical Aspects	3

Semester 5: Fall		
ATTR 616	Clinical Practice III	6
ATTR 622	Therapeutic Interventions I	3
ATTR 632	Therapeutic Interventions II	3
ATTR 612	Clinical Skills III	2
Semester 6: January		
ATTR 655	Preparation for Professional Practice	1
Semester 7: Spring		
ATTR 652	Clinical Practice IV	6
ATTR 662	Clinical Skills IV	2
ATTR 672	Athletic Training Seminar	2
ATTR 682	Behavioral Medicine	2
Program Total:		58

Master of Athletic Training Curriculum, Implemented Fall 2019 – Fall 2021

<i>Course Number</i>	<i>Course Name</i>	<i>Credit Hours</i>
Semester 1: Fall		
ATTR 503	Orientation to Athletic Training Practice	3
ATTR 510	Acute Trauma Management	4
ATTR 532	Clinical Skills Lab I	3
ATTR 520	Injury Classification & Management	4
Semester 2: January		
ATTR 525	Pharmacy Principles for Athletic Trainers	3
Semester 3: Spring		
ATTR 517	Clinical Practice I	3
ATTR 528	Patient Assessment & Therapeutic Intervention I	4
ATTR 542	Clinical Skills Lab II	3
ATTR 538	Patient Assessment & Therapeutic Intervention II	4
Semester 4: Summer		
ATTR 533	Administration of Athletic Training Practice	4
ATTR 513	Orientation to Medical Specialties	1
Semester 5: Fall		
ATTR 527	Clinical Practice II	3
ATTR 548	Patient Assessment & Therapeutic Intervention III	4
ATTR 552	Clinical Skills Lab III	3
ATTR 558	Patient Assessment & Therapeutic Intervention IV	4
Semester 6: January		
ATTR 555	Preparation for Professional Practice	3
Semester 7: Spring		
ATTR 537	Clinical Practice III	3
ATTR 581	Integration of Patient Care I	4

ATTR 562	Clinical Skills Lab IV	3
ATTR 582	Integration of Patient Care II	4
	Program Total:	67

Master of Athletic Training Course Descriptions

ATTR 502 Clinical Practice I - 5 hours

First, in a series of four required clinical practice courses. Classroom components will provide additional clinical opportunities in the form of simulation and are designed to deepen students' experience with critical thinking and reflection on their role in the healthcare team. Students will apply clinical skills concurrently taught in the curriculum to an actual patient base during supervised clinical experiences. Students are guided by a preceptor who will provide graded autonomy based on the student's previous experience and will evaluate the student's skills and abilities over the course of their clinical experiences.

ATTR 503 Orientation to Athletic Training Practice - 3 hours

Introductory course for MAT students. Topics include domains and standards of athletic training practice, history of the profession, and the foundations for delivering patient-centered care. Students will have the ability to observe athletic trainers working in various settings in athletic training: occupational health, secondary, collegiate, and orthopedic clinic. Skills learned in this course are practiced and refined in a field experience component. Students are directly supervised by a preceptor.

ATTR 506 Clinical Practice II - 5 hours

Second, in a series of four required clinical practice courses. Classroom components will provide additional clinical opportunities in the form of simulation and are designed to deepen students' experience with critical thinking and reflection on their role in the healthcare team. This course emphasizes patient-centered care, interprofessional practice, communication, decision-making, and using evidence to guide clinical decisions regarding musculoskeletal evaluation and assessment. Students will apply clinical skills previously taught in the curriculum to an actual patient base during supervised clinical experiences. Students are guided by a preceptor who will provide graded autonomy based on the student's previous experience and will evaluate the student's skills and abilities over the course of their clinical experiences.

ATTR 510 Acute Trauma Management - 4 hours

Introductory course for MAT students. Topics include domains and standards of practice, history of the profession, concepts of injury and illness prevention, injury mechanisms and classifications, and immediate management of illnesses and injuries. Skills learned in this course are practiced and refined in a field experience component.

ATTR 512 Clinical Skills I - 2 hours

First in a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their use of

equipment used to manage urgent and emergent conditions as well as, selecting, fabricating, and customizing taping, splinting, protective padding, and casting.

ATTR 513 Orientation to Medical Specialties - 1 hour

Students will acquire skills and knowledge on the recognition, treatment, and referral of general medical conditions. Including but not limited to congenital and acquired abnormalities. Included are physiological progression of injuries, illnesses, and diseases. Additional area of focus related to diagnostics, interventions, pharmacological and implications for patients.

ATTR 517 Clinical Practice I - 3 hours

Students will apply clinical skills concurrently taught in the curriculum to an actual patient base during supervised clinical experiences. Students are guided by a preceptor who will provide graded autonomy based on the student's previous experience and will evaluate the student's skills and abilities over the course of their clinical experiences.

ATTR 520 Injury Classification & Management - 4 hours

Introduction to the prevention, recognition, evaluation, and management of common musculoskeletal injuries and conditions. Class activities center on preparing students with foundational knowledge to prepare them for their first clinical experience.

ATTR 521 Immediate and Emergency Care - 2 hours

This course prepares students with the knowledge and skills needed to evaluate and manage patients with urgent conditions, including triaging conditions that are life threatening or otherwise emergent. Topics included (but are not limited to) the following conditions: cardiac, respiratory, and cervical spine compromise, environmental conditions, traumatic brain injury, fractures and dislocations, exertional sickling, rhabdomyolysis, hyponatremia, diabetes, drug overdose, wounds, testicular injury, and other musculoskeletal injuries.

ATTR 522 Clinical Skills II - 2 hours

Second in a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their skills related to assessing patients with musculoskeletal conditions using the International Classification of Functioning, Disability, and Health.

ATTR 525 Pharmacy Principles for Athletic Trainers - 3 hours

This course is designed to provide students with a basic understanding of pharmacology emphasizing drug law, routes of administration, basic pharmacokinetics, and the specific pharmacology and therapeutics of drugs commonly used in physical medicine. A class presentation and research paper are required of graduate students enrolled in this course.

ATTR 526 Musculoskeletal Assessment I - 3 hours

This course will focus on the knowledge, skills, and abilities required to assess patients with musculoskeletal conditions of the upper extremity, head, and neck regions.

ATTR 527 Clinical Practice II - 3 hours

Clinical practice II is the second in a sequence of three required clinical practice courses. In this level of clinical experience in athletic training, students have the opportunity to practice and apply designated clinical techniques. Students are under supervision of an approved preceptor who will evaluate the students' clinical proficiencies in an athletic training setting. Prerequisite: ATTR-517

ATTR 528 Patient Assessment & Therapeutic Intervention IV - 4 hours

This course focuses on the advanced physical assessment and treatment of injury and pathology of the upper extremity, cervical spine, thorax, and abdomen. Students will learn the theory and techniques of joint mobilization, proprioceptive neuromuscular facilitation, and other selected rehabilitation strategies and modalities used by athletic trainers to restore a patient's muscular flexibility, strength, endurance and functional ability following injury.

ATTR 531 Injury Classification & Management - 2 hours

Introduction to the prevention, recognition, evaluation, and management of common musculoskeletal injuries and conditions. Class activities center on preparing students with foundational knowledge to prepare them for their first clinical experience.

ATTR 532 Clinical Skills I - 3 hours

First in a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their use of equipment used to manage urgent and emergent conditions as well as, selecting, fabricating, and customizing taping, splinting, protective padding, and casting.

ATTR 533 Administration of Athletic Training Practice - 4 hours

This course will focus on health care administration topics for the athletic trainer. Topics include liability and risk management issues, athletic training facility design and operation, budgeting, and personnel management.

ATTR 536 Musculoskeletal Assessment II - 3 hours

This course will focus on the knowledge, skills, and abilities required to assess patients with musculoskeletal conditions of the lower extremity, spine, and pelvic regions.

ATTR 537 Clinical Practice III - 3 hours

Clinical practice III is the third in a sequence of three required clinical practice courses. In this level of clinical experience in athletic training, students have the opportunity to practice and apply designated clinical techniques. Students are under supervision of an approved preceptor who will evaluate the students' clinical proficiencies in an athletic training setting.

ATTR 538 Therapeutic Interventions II - 4 hours

This course focuses on selecting and incorporating interventions for pre-op, post-op, and nonsurgical conditions to develop a plan of care. Interventions included in this course include but are not limited to therapeutic and corrective exercise, joint mobilization and manipulation, movement training, motor control/proprioceptive activities, task-specific functional training, cardiovascular training, and home care management.

ATTR 542 Clinical Skills Lab II - 3 hours

Application and practice of skills related to topics addressed in Patient Assessment and Therapeutic Intervention I and II. Includes development of ability to use appropriate psychosocial techniques in patient care, documentation procedures, and various measurement techniques used by athletic trainers.

ATTR 548 Patient Assessment & Therapeutic Intervention III - 4 hours

This course focuses on the advanced physical treatment with therapeutic modalities and rehabilitation as it pertains to the treatment of injury and pathology of the upper and lower extremity. Students will learn the theory and techniques of therapeutic ultrasound, diathermy, myofascial techniques, electrical muscle stimulation and other modalities commonly seen in athletic training. These will be selected while determining rehabilitation strategies and modalities used to restore a patient's muscular flexibility, strength, endurance and functional ability following injury.

ATTR 552 Clinical Skills III - 3 hours

Third, a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their skills related to designing, implementing, and evaluating care plans for patients with pre-op, post-op, and nonoperative conditions.

ATTR 555 Preparation for Professional Practice - 3 hours

This course emphasizes transition to practice and preparing the student to practice autonomously. The course is designed to help students prepare for the BOC certification exam as well as their transition to autonomous practice as an athletic trainer. Topics discussed will integrate previous coursework but will be determined based on student needs assessment and trends in athletic training practice.

ATTR 558 Patient Assessment & Therapeutic Intervention IV - 4 hours

This course guides therapists to develop evidenced-based practices when integrating therapeutic modalities and rehabilitation exercises to the treatment of injury and pathology of the upper and lower extremity.

ATTR 562 Clinical Skills IV - 3 hours

Fourth in a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their skills related to cultural competence, leadership, and behavioral medicine.

ATTR 563 Pharmacy Principles for Athletic Trainers - 2 hours

This course is designed to provide students with a basic understanding of pharmacology emphasizing drug law, routes of administration, basic pharmacokinetics, and the specific pharmacology and therapeutics of drugs commonly used in physical medicine. Students will also engage in interprofessional education, learning from other health profession students and teaching them pharmacy-related athletic training principles.

ATTR 581 Integration of Patient Care I - 4 hours

Students will learn how the increasing diversity of the United States brings opportunities and

challenges for health care providers, health care systems, and policy makers to create and deliver culturally competent services. Topics covered in this class include health literacy, cultural literacy, and geriatrics.

ATTR 582 Integration of Patient Care II - 4 hours

Designed to expand on the course content in ATTR 581- Integration of Patient Care I, this course blends behavioral health services with general and/or specialty medical services. This course also expands on interprofessional practice by exposing students to various healthcare professionals in order to effectively coordinate the care of patients.

ATTR 612 Clinical Skills III - 2 hours

Third, a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their skills related to designing, implementing, and evaluating care plans for patients with pre-op, post-op, and nonoperative conditions.

ATTR 616 Clinical Practice III - 6 hours

Third, in a series of four required clinical practice courses. This course emphasizes patient-centered care, interprofessional practice, communication, decision-making, and using evidence to guide clinical decisions regarding non-orthopedic evaluation and assessment as well as designing, implementing, and evaluating treatment plans. Students will apply clinical skills previously taught in the curriculum to an actual patient base during supervised clinical experiences. Students are guided by a preceptor who will provide graded autonomy based on the student's previous experience and will evaluate the student's skills and abilities over the course of their clinical experiences. Classroom components will provide additional clinical opportunities in the form of simulation and are designed to deepen students' experience with critical thinking and reflection on their role in the healthcare team.

ATTR 622 Therapeutic Interventions I - 3 hours

This course focuses on selecting and incorporating interventions for pre-op, post-op, nonsurgical conditions to develop a plan of care. Interventions included in this course include but are not limited to patients with therapeutic ultrasound, diathermy, soft tissue techniques, electrical muscle stimulation, and other therapeutic modalities commonly used by athletic trainers.

ATTR 632 Therapeutic Interventions II - 3 hours

This course focuses on selecting and incorporating interventions for pre-op, post-op, and nonsurgical conditions to develop a plan of care. Interventions included in this course include but are not limited to therapeutic and corrective exercise, joint mobilization and manipulation, movement training, motor control/proprioceptive activities, task-specific functional training, cardiovascular training, and home care management.

ATTR 633 Medical Aspects - 3 hours

This course is focused on non-orthopedic conditions of the human body most seen, evaluated, treated and referred by athletic trainers. Students have the opportunity to practice and apply designated clinical techniques in the classroom.

ATTR 643 Healthcare Administration - 2 hours

This course will focus on health care administration topics for the athletic trainer. Topics include liability, risk management, athletic training facility design, policy, procedures, operation, budgeting, and personnel management.

ATTR 652 Clinical Practice IV - 6 hours

Fourth, in a series of four required clinical practice courses. This course emphasizes patient-centered care, interprofessional practice, communication, decision-making, and using evidence to guide clinical decisions regarding the totality of athletic training practice. Students will apply clinical skills previously taught in the curriculum to an actual patient base during supervised clinical experiences. Students are guided by a preceptor who will provide graded autonomy based on the student's previous experience and will evaluate the student's skills and abilities over the course of their clinical experiences. Classroom components will provide additional clinical opportunities in the form of simulation and are designed to deepen students' experience with critical thinking and reflection on their role in the healthcare team.

ATTR 655 Preparation for Professional Practice - 1 hour

This course emphasizes transition to practice and preparing the student to practice autonomously. The course is designed to help students prepare for the BOC certification exam as well as their transition to autonomous practice as an athletic trainer. Topics discussed will integrate previous coursework but will be determined based on student needs assessment and trends in athletic training practice.

ATTR 662 Clinical Skills IV - 2 hours

Fourth in a series of four courses that focus on establishing proficiency of skills introduced in concurrent program courses. Students will engage in classroom activities to practice their skills related to cultural competence, leadership, and behavioral medicine.

ATTR 672 Athletic Training Seminar - 2 hours

Students will learn how the increasing diversity of the United States brings opportunities and challenges for health care providers, health care systems, and policy makers to create and deliver culturally competent services. Current topics in athletic training will also be presented in this class.

ATTR 682 Behavioral Medicine - 2 hours

Presents the skills needed to recognize, manage, and refer patients with a variety of psychological and mental health concerns which could affect the patient and the rehabilitation process. This course will teach how to help the patient adhere to their treatment plan which could include referrals, counseling, and/or pharmacological therapy.

Master of Science in Pharmacogenomics

The Master of Science in Pharmacogenomics (MS in PGx) degree is designed to prepare students to enter the specialized field of application of genetic information, where an individual's DNA is used to optimize drug therapy.

The following are the learning outcomes of the MS in PGx program:

- Demonstrate mastery of the scientific principles that relate to pharmacogenomics
- Use literature and database resources to keep up-to-date with the evolving field of pharmacogenomics
- Interpret pharmacogenomic test results and effectively communicate information in written and oral formats
- Demonstrate technical proficiency with relevant scientific methodologies

The following are the learning outcomes of the academic certificate program:

- Demonstrate proficiency of the scientific principles that relate to pharmacogenomics
- Interpret pharmacogenomics test results and effectively communicate information in written and oral formats

Master of Science in Pharmacogenomics Program Options

Graduate Certificate, Online

12 credit hours

The online graduate certificate (GC in PGx) is designed primarily for those with a professional health care degree or an undergraduate science degree. The GC in PGx provides an introduction to pharmacogenomics and includes the study of human genetics, bioinformatics, ethics and pharmacokinetics. The curriculum offers electives related to pharmacogenomics implementation in clinical settings or laboratory training. Students taking electives in pharmacogenomics implementation will create a business plan for implementation of pharmacogenomics testing at a clinical site. Students that take the laboratory training will learn to perform DNA analysis with the most up-to-date technology in preparation for work in the pharmacogenomic/genetic testing, pharmaceutical, and professional service industries. The pharmacogenomics implementation electives are completed online.

Students that successfully complete the Graduate Certificate in Pharmacogenomics are eligible to apply for the Masters in Pharmacogenomics program. Any credits earned during the academic certificate will apply towards to total credits needed for the master's degree. See the Graduate Certificate in PGx requirements below.

1 Year, On-Campus

34 credit hours

The on-campus program at the Fort Wayne, IN campus is designed primarily for those with an undergraduate science degree, offering a one-year, intensive path to a master's degree divided into three four-month semesters. It provides unparalleled depth and breadth in pharmacogenomics and includes the study of human genetics, bioinformatics, ethics and pharmacokinetics. The curriculum offers electives in laboratory training or pharmacogenomics implementation in clinical settings. Students that take the laboratory training will learn to perform DNA analysis with the most up-to-date technology in preparation for work in the pharmacogenomic/genetic testing, pharmaceutical, and professional service industries.

Students taking electives in pharmacogenomics implementation will create a business plan for implementation of pharmacogenomics testing at a clinical site. The pharmacogenomics implementation electives are completed online. See the Master of Science in PGx degree requirements below.

2 Year, Online

34 credit hours

The online program is designed primarily for those with an undergraduate science or professional degree, offering a two-year, part-time path to a master's degree divided into intensive 7-week courses. It provides unparalleled depth and breadth in pharmacogenomics and includes the study of human genetics, bioinformatics, ethics and pharmacokinetics. The curriculum offers electives in laboratory training or pharmacogenomics implementation in clinical settings. Students that take the laboratory training will learn to perform DNA analysis with the most up-to-date technology in preparation for work in the pharmaceutical, genetic testing, and professional service industries. The laboratory course sequence is only offered on campus and at specific times, therefore students that choose to take the laboratory courses will complete that coursework at the Manchester University Fort Wayne, IN campus. Students taking electives in pharmacogenomics implementation will create a business plan for implementation of pharmacogenomics testing at a clinical site. The pharmacogenomics implementation electives are completed online. See the Master of Science in PGx degree requirements below.

Dual Degree, On-Campus and Online

34 credit hours

The dual degree program is for students in the Manchester University Pharmacy Program. It combines both on campus and online courses. It provides unparalleled depth and breadth in pharmacogenomics and includes the study of human genetics, bioinformatics, ethics and pharmacokinetics. The curriculum offers electives in laboratory training or pharmacogenomics implementation in clinical settings. Students that take the laboratory training will learn to perform DNA analysis with the most up-to-date technology in preparation for work in the pharmacogenomic/genetic testing, pharmaceutical, and professional service industries. The laboratory course sequence is only offered on campus and at specific times, therefore students that choose to take the laboratory courses will complete that coursework at the Manchester University Fort Wayne, IN campus. Students taking electives in pharmacogenomics implementation will create a business plan for implementation of pharmacogenomics testing at a clinical site. The pharmacogenomics implementation electives are completed online. See Dual Degree requirements below.

Admission Requirements

Graduate Certificate in Pharmacogenomics

To be considered for admission to the graduate certificate program, candidates must:

- Possess a minimum of a professional degree (medicine, dentistry, pharmacy, etc.); a master's degree in science or science related field (genetic counseling, etc.); or a bachelor's degree in science or a science related field (chemistry, biology, etc.)

Master of Science in Pharmacogenomics, on campus and online

Beginning with the Spring of 2019 cohort (students with a January 2019 start date and beyond), to be considered for admission to the program, candidates must:

- Possess a minimum of a bachelor's degree in science or a science related field (chemistry, biology, etc.); or a professional degree (medicine, dentistry, pharmacy, etc.); or a master's degree in science or science related field (genetic counseling, etc.)
- A minimum cumulative GPA of 2.7 is preferred on a 4.0 scale
- A minimum science GPA of 2.7 is preferred on a 4.0 scale

Dual Degree Master of Science in Pharmacogenomics and Doctor of Pharmacy

- Enrolled in the Manchester University Pharmacy Program
- A minimum cumulative GPA of 2.7 is preferred on a 4.0 scale
- A minimum science GPA of 2.7 is preferred on a 4.0 scale

Admission Deferment

A student may defer their offer of enrollment one time. The maximum time for deferment is one year. If the student requires multiple deferments, or a deferment longer than a year, they must reapply to the program and be reassessed for admission to the program.

Degree Requirements

Graduate Certificate in Pharmacogenomics

To earn the academic certificate in PGx, students must:

- Have a cumulative GPA of at least 3.00
- Complete a total of 12 credit hours of course work (8 required and at least 4 credit hours elective) with a grade of "C" or better

Graduate Certificate in Pharmacogenomics Course Requirements

<i>Course Number</i>	<i>Course Name</i>	<i>Credit Hours</i>
<i>Required</i>		
PGX 501	Intro to Pharmacogenomics	2
PGX 508	Pharmacogenomics in Practice I	3
PGX 526	Applied Pharmacogenomics I	3
<i>Electives</i>		

PGX 462	Research and Innovation Practice Seminar	1
PGX 505	Pharmacology	4
PGX 511	Advanced Molecular Biology	3
PGX 512	Advanced Pharmacokinetics	2
PGX 521	Human Genetics	4
PGX 531	Bioinformatics	4
PGX 533	Biostatistics/Data Analysis	3
PGX 536	Applied Pharmacogenomics in Practice 2	3

Master of Science in Pharmacogenomics

To earn the Master of Science in Pharmacogenomics degree, students must:

- Have a cumulative grade point average of at least 3.00
- Complete a total of 34 credit hours of course work (29 credit hours required and at least 5 credit hours elective) with a grade of “C” or better

To earn the Master of Science in Pharmacogenomics degree as a Pharm D/MS PGx dual degree student, students must:

- Have a cumulative grade point average of at least 3.00
- Complete a total of 34 credit hours of course work (29 credit hours required and at least 5 credit hours elective) with a grade of “C” or better
- For students without a bachelors or professional degree, the MS in PGx degree will not be awarded until the pharmacy degree is conferred

Master of Science in Pharmacogenomics Course Requirements

<i>Course Number</i>	<i>Course Name</i>	<i>Credit Hours</i>
<i>Required</i>		
PGx 501	Introduction to Pharmacogenomics	2
PGx 505	Pharmacology	4
PGx 521	Human Genetics	4
PGx 515	Research Responsibilities and Ethics	1
PGx 526	Applied Pharmacogenomics 1	3
PGx 531	Bioinformatics	4
PGx 512	Advanced Pharmacokinetics	2
PGx 536	Applied Pharmacogenomics 2	3
PGx 511	Advanced Molecular Biology	3

PGx 533	Data Analysis/Biostatistics	3
<i>Electives</i>	Choose 5 credit hours from the following:	
PGx 514	Analytical Technology 1	1
PGx 524	Analytical Technology 2	2
PGx 534	Analytical Technology 3	2
PGx 508	Pharmacogenomics in Practice 1	3
PGx 528	Pharmacogenomics in Practice 2	2
PGx 462	Research and Innovative Practice Seminar	1
PGx 592	Pharmacogenomics Lab (includes an extra fee)	1

Pharmacogenomics Course Descriptions

PGX 462 Research and Innovative Practice Seminar - 1 hour

Current topics, innovative practice, and current research in pharmacy, pharmaceutical sciences, and related scientific disciplines will be presented. Invited speakers from within and outside the Manchester community will provide a formal seminar, exposing students to research methodologies, potential student research projects, and networking opportunities. Online students will participate by watching recorded seminars on their own time. *Prerequisite:* none

PGX 501 Introduction to Pharmacogenomics - 2 hours

A presentation of the evolution of pharmacogenetics/pharmacogenomics, the human genome and modern applications of DNA information related to drugs. There will also be focused attention to necessary calculations for research and an introduction to pharmacokinetics.

Prerequisite: none

PGX 505 Pharmacology - 4 hours

This course focuses on physiology, pathophysiology and the cellular and molecular mechanisms of drug action. Specifically, the cardiovascular and nervous systems will be discussed, as well as infectious diseases, oncology and any related drugs. *Prerequisite:* none

PGX 508 Pharmacogenomics in Practice I - 3 hours

A two-course sequence (PGx in Practice 1 and 2) focused on the application of pharmacogenomics in practice settings. The course will be formative, write-ups and discussions of patient cases. The second course in the sequence (PGx in Practice 2) will also include the composition of an implementation plan (for introducing pharmacogenomics into practice sites) among other graded events. *Prerequisite:* none

PGX 511 Advanced Molecular Biology - 3 hours

Concepts will be related to analytical methodology. Current approaches to DNA manipulation and mutation analysis, protein assays, quantitative analysis of gene expression, sequencing, immunostaining, microscopy, and image analysis will be discussed. *Prerequisite:* PGX 521 (grade of "C" or better or permission)

PGX 512 Advanced Pharmacokinetics - 2 hours

Discusses the mathematical and conceptual study of the time course of drug absorption, distribution, metabolism, and excretion. *Prerequisite:* none

PGX 514 Analytical Technology I - 1 hour

Pharmacists are relying more on pharmacogenomic data to inform therapeutic decision making. An understanding and appreciation for how this data is generated will allow the students and future pharmacist to be more equipped to handle pharmacogenomic patient problems. This laboratory course introduces modern analytical techniques commonly used for DNA, RNA, and protein collection, isolation, preparation, and analysis. Students will have the opportunity to actively engage in laboratory processes associated with pharmacogenomics. *Prerequisite:* none

PGX 515 Research Responsibilities and Ethics - 1 hour

Research and practice in genomics give rise to numerous ethical issues and challenges. This interactive online course is designed to promote a deeper understanding of the ethical, legal and social implications of research and practice in pharmacogenomics. *Prerequisite:* none

PGX 521 Human Genetics - 4 hours

In this course, students will gain an in-depth understanding of how genes influence human traits, diseases, and behaviors, including how non-genetic factors interact with genetic factors to produce observable phenotypes. Human inheritance patterns, genome organization, linkage, and medical applications of genetics in the diagnosis, treatment, and prevention of disease will be explored. Techniques used in the field of human genetics will be integrated with principles and concepts presented in didactic sessions. *Prerequisite:* none

PGX 524 Analytical Technology II - 2 hours

In this research project-based laboratory course, students will learn to apply molecular biology techniques to answer scientific questions. Students will learn and apply principles of basic cell culture, RNA and protein purification and quantification as well as RNA interference and gene silencing. *Prerequisite:* PGX 514 (grade of "C" or better or permission)

PGX 526 Applied Pharmacogenomics I - 3 hours

Discusses academic and clinical scientific literature related to single nucleotide polymorphisms, gene and protein expression along with other genetic or epigenetic variations and their potential impact on clinical medicine and related clinical outcomes. The translation of genetic variations to drug selection, dosing regimens, adverse effects, and regimen optimization will be discussed. *Prerequisite:* PGX 501 (grade of "C" or better or permission)

PGX 528 Pharmacogenomics in Practice II - 2 hours

A two-course sequence (PGx in Practice 1 and 2) focused on the application of pharmacogenomics in practice settings. The course will be formative, write-ups and discussions of patient cases. The second course in the sequence (PGx in Practice 2) will also include the composition of an implementation plan (for introducing pharmacogenomics into practice sites) among other graded events. *Prerequisite:* PGX 508, Pharmacogenomics in Practice I (grade of "C" or better or permission)

PGX 531 Bioinformatics - 4 hours

The general objective of this course is to teach how computational techniques can help with solving biological problems. Students will learn to efficiently use multiple genomics and bioinformatics tools, that are freely available, for the analysis of DNA, RNA and protein sequences. *Prerequisite:* none

PGX 533 Data Analysis/Biostatistics - 3 hours

Discusses the use of statistical methods to process public health and genetic data. An emphasis on interpretation and concepts in areas such as population genetics, genome-wide association studies and systems biology will be undertaken. *Prerequisite:* none

PGX 534 Analytical Technology III - 2 hours

This laboratory course expands upon modern analytical techniques commonly used for DNA, RNA, and protein collection, isolation, preparation, visualization and analysis. *Prerequisite:* PGX 514 and PGX 524 (grade of "C" or better or permission)

PGX 536 Applied Pharmacogenomics II - 3 hours

A continuation of Applied Pharmacogenomics and will continue to focus on single nucleotide polymorphisms and other genetic variation and their potential impact on clinical medicine and related clinical outcomes. The translation of genetic variations to drug selection, dosing regimens, adverse effects, and regimen optimization will be discussed. *Prerequisite:* PGX 501 and PGX 526 (grade of "C" or better or permission)

PGX 592 Pharmacogenomics Lab - 1 hour

This on campus laboratory course introduces modern analytical techniques commonly used for DNA, RNA, and protein collection, isolation, preparation, and analysis. Students will have the opportunity to actively engage in laboratory processes associated with pharmacogenomics. The course is one-week in length and students will work for 40 hours during the week. *Special note:* This course includes an additional laboratory fee. *Prerequisite:* none