

Transfusion Medicine (TRME)

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Transfusion Medicine website (<https://www.marquette.edu/grad/programs-transfusion-medicine.php>)

Degree Offered

Master of Science in Transfusion Medicine, students are admitted under Plan B (non-thesis option) but Plan A (thesis option) may be requested

Program Description

The transfusion medicine program is a collaboration between Marquette University and Versiti Blood Center of Wisconsin. The first 18 credits must be completed at Versiti Blood Center within two and a half years of starting the program. Additional credits are completed exclusively at Marquette University. Students have the option to enroll at Marquette if it does not interfere with course work at Versiti Blood Center of Wisconsin.

Students **must** currently be enrolled in the Specialist in Blood Banking (SBB) program at Versiti Blood Center of Wisconsin (<http://www.bcw.edu/bcw/medical-services-blood-products/education-programs/sbb-program>), the Blood Center's independent course of study, in order to be eligible to apply for the master of science program in transfusion medicine at Marquette University. No exceptions are made to this requirement.

Visit the department Web page (<https://www.bcw.edu/bcw/medical-services-blood-products/education-programs/sbb-program>) for more detailed program information.

Application Deadlines

Applications to the SBB program at Versiti Blood Center of Wisconsin for the fall term are accepted from January 1 to March 31 each year. Applications from students already enrolled in the SBB program to the transfusion medicine program at Marquette University are accepted on a rolling basis, following Graduate School deadlines each term for having completed application files and for financial aid.

Application Requirements

Applicants must submit, directly to the Graduate School:

1. A completed application form and fee online (http://marquette.edu/grad/future_apply.shtml).
2. Copies of all college/university transcripts except Marquette.¹
3. Three letters of recommendation.
4. A list of continuing education for the last two years.
5. A letter of intent stating reasons for applying to this program and how SBB certification will impact their professional life and further their career.
6. (For international applicants only) laboratory training records.
7. (For international applicants only) GRE scores.
8. (For international applicants only) a TOEFL score or other acceptable proof of English proficiency.

¹ Upon admission, final official transcripts from all previously attended colleges/universities, with certified English translations if original language is not English, must be submitted to the Graduate School within the first five weeks of the term of admission or a hold preventing registration for future terms will be placed on the student's record.

Transfusion Medicine Master's Requirements

Specializations: Business Administration, Education, Science

For Plan B (non-thesis option – default), students must complete 39, 40 or 40.5 total graduate-level credit hours depending on specialization. Students must complete 18 credit hours in transfusion medicine (TRME) courses, credit hours in specialization courses (19.5 credit hours in business administration, 18 credit hours in education, or 18 or 19 credit hours in science), plus 3 capstone essay credit hours. Students must also participate in the department colloquium for no credit. When the 18 TRME credits are completed at the BloodCenter, the student is required to take a national examination.

Students may request Plan A (thesis option) after admission and, if selected, should secure co-direction on their thesis from a member of their specialization faculty.

Core Courses

TRME students are required to take the following courses (18 credits), participate in the department colloquium (no credit), complete a capstone (3 credits), for a total of 21 TRME credits. Students must also fulfill the requirements for one of the three specializations of business administration, education or science.

TRME 6101	Introduction to Transfusion Medicine	1
TRME 6201	Immunoematology 1	2
TRME 6202	Immunoematology 2	2
TRME 6220	Essentials of Blood Collection and Testing	3
TRME 6301	Management and Education in Transfusion Medicine	3
TRME 6401	Anemias and Related Topics	2
TRME 6402	Hemostasis and Transplantation	2
TRME 6501	Pathophysiology in Transfusion Medicine	2
TRME 6998	Transfusion Medicine Project	1
TRME 6952	Colloquium in Transfusion Medicine	0
TRME 6997	Transfusion Medicine Capstone	3
Total Credit Hours		21

Specialization Requirements

Business Administration

Students are required to take three core courses, four electives, and must meet all prerequisite requirements for the master of business administration classes. Students must also select an area of study from the following: organizational management, operations and supply chain management, accounting and finance, marketing, management information systems or general business. Those students who have academic backgrounds sufficient to waive any of the required courses are allowed to complete additional elective course work.

The required business administration courses ensure a fundamental understanding of the basics of accounting, human resources and organizational issues in the work place. In addition, the environmental influences courses place a strong emphasis on Marquette's traditional focus on societal concerns and the social responsibilities of today's working professional.

Required Business Administration Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	

Elective Courses for each Business Administration Specialization	9
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At least three courses must be completed within a student's area of study from the classes listed below. Note required and elective lists within each area.

Total Credit Hours	19.5
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Organizational Management

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	
HURE 5140	International Human Resources Management	3
or MANA 6140	International Management	

Elective Courses	6
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HURE 5003	Employment Law	
HURE 5010	Strategic Compensation and Rewards	
HURE 5020	Labor Relations and Collective Bargaining	
HURE 5080	Talent Development	
HURE 6170	Managing Human Capital	
HURE 6535	Diversity and Inclusion in Global Organizations	
HURE 6931	Topics in Human Resource Management	
LEDR 6051	Contemporary Leadership: Theory, Research and Application	
LEDR 6101	Strategic Communication	
LEDR 6110	Managing Behavior in Organizations	

LEDR 6115	Character Driven Leadership	
LEDR 6125	Negotiations	
LEDR 6215	Change Leadership	
LEDR 6931	Topics in Leadership Studies	
LEDR 6995	Independent Study in Leadership Studies	
MANA 6110	Managing Behavior in Organizations	
MANA 6115	Change Leadership in Self and Organizations	
MANA 6125	Negotiations	
MANA 6140	International Management	
MANA 6931	Topics in Management	
MANA 6953	Seminar in Management	
MANA 6995	Independent Study in Management	

Total Credit Hours 19.5

Operations and Supply Chain Management

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	
OSCM 6200	Operations and Supply Chain Management	3

Elective Courses 6

OSCM 6110	Manufacturing Management	
OSCM 6115	Service Operations Management	
OSCM 6120	Quality and Process Management	
OSCM 6125	Purchasing and Supply Management	
OSCM 6140	Globalization and Global Operations	
OSCM 6151	Enterprise Systems in Supply Chain Management	
OSCM 6931	Topics in Operations and Supply Chain Management	
OSCM 6953	Seminar in Operations and Supply Chain Management	
OSCM 6995	Independent Study in Operations and Supply Chain Management	

Total Credit Hours 19.5

Accounting and Finance

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	
ACCO 6200	Managerial Accounting for Decision Making	3
FINA 6200	Advanced Financial Management	3

Elective Courses 3

ACCO 6180	Financial Statement Analysis	
ENTP 6180	Entrepreneurial Finance	
FINA 5931	Topics in Finance	
FINA 6081	Investment Banking	
FINA 6111	Investments	
FINA 6130	Bank Management	
FINA 6140	International Financial Management	
FINA 6163	Real Estate Finance and Investments	
FINA 6165	Fixed Income Markets and Securities	
FINA 6170	Investment Management, Ethics and Society	

FINA 6931	Topics in Finance	
FINA 6953	Seminar in Finance	
FINA 6995	Independent Study in Finance	
Total Credit Hours		19.5

Marketing

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	
MARK 6200	Marketing for Management Decision Making	3

Elective Courses 6

MARK 6110	Consumer Behavior	
MARK 6120	Integrated Marketing Communications	
MARK 6125	Digital Marketing	
MARK 6130	Customer Relationship Management	
MARK 6136	Sales Management	
MARK 6140	Global Marketing Strategy	
MARK 6160	Marketing Research	
MARK 6165	Marketing Analytics	
MARK 6170	Marketing Ethics, Markets and Social Responsibility	
MARK 6175	Marketing and Social Entrepreneurship	
MARK 6185	Brand Management	
MARK 6931	Topics in Marketing	
MARK 6953	Seminar in Marketing	
MARK 6995	Independent Study in Marketing	

Total Credit Hours 19.5

Management Information Systems

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5
or MBA 6130	Corporate Social Responsibility	
INSY 6200	Information Systems Strategy	3
or INSY 5931	Topics in Information Systems	

Elective Courses 6

INSY 6153	Project Management	
INSY 6156	Privacy and Security	
INSY 6157	Global Information Systems Outsourcing	
INSY 6158	Systems Analysis and Design	
INSY 6931	Topics in Information Systems	
INSY 6953	Seminar in Information Systems	
INSY 6995	Independent Study in Information Systems	

Total Credit Hours 19.5

General Business

Required Courses

MBA 6020	Business Essentials: Accounting, Economics and Finance	4.5
MBA 6030	Business Essentials: Marketing, IT and Operations and Supply Chain	4.5
MBA 6120	Concepts for Ethical Business Practice	1.5

or MBA 6130	Corporate Social Responsibility	
ACCO 6200	Managerial Accounting for Decision Making	3
or FINA 6200	Advanced Financial Management	
Elective Courses		6
ACCO 6200	Managerial Accounting for Decision Making	
FINA 6200	Advanced Financial Management	
INSY 6200	Information Systems Strategy	
MARK 6200	Marketing for Management Decision Making	
OSCM 6200	Operations and Supply Chain Management	
For 3 of the 6 elective credit hours, students may choose two 1.5-credit courses from:		
MBA 6140	Leading People and Change	
MBA 6150	Leading Innovation and Creativity	
MBA 6160	Leadership Coaching and Development	
Total Credit Hours		19.5

Education

Students in this specialization are required to take three core courses and three electives. Those students who have academic backgrounds sufficient to waive any of the required courses are allowed to complete additional elective course work.

Required Courses		9
COUN 6050	Research Methods in Counseling	
or EDPL 6000	Introduction to Educational Inquiry	
EDPL 6445	Learning and Curriculum Theories	
EDPL 6450	Theories of Learning Applied to Instruction	
Elective Courses		9
COPS 8310	Intermediate Research and Statistics	
COPS 8320	Measurement and Evaluation (COPS 8310 is a prerequisite for COPS 8320)	
EDPL 6140	Diversity, Identity and the Student Affairs Professional	
EDPL 6200	Student Development in Higher Education	
EDPL 6210	Environmental Theory Assessment in Higher Education	
EDPL 6260	Organizational Theory and Administration in Higher Education	
EDPL 6800	American Law and the Educational Organization	
EDPL 6860	Instructional Leadership	
EDPL 6870	Curriculum Leadership	
EDUC 6040	Introduction to Learning and Assessment	
Total Credit Hours		18

Science

Students in this specialization are required to take three core courses and 9-10 credits of electives. Those students who have academic backgrounds sufficient to waive any of the required courses are allowed to complete additional elective course work.

Required Courses		9
BIOL 5806	Immunobiology	
BIOL 6011	Advanced Concepts in Genetics and Cell Biology	
BIOL 6012	Advanced Concepts in Cell Biology and Biochemistry	
Elective Courses		9-10
BIOL 8101	Protein Structure and Function	
BIOL 8102	Biochemistry and Function of Nucleic Acids	
BIOL 8201	Epigenetics	
BIOL 8202	Principles of Eukaryotic Genetics	
BIOL 8301	Imaging and Cytoskeletons	
BIOL 8302	Protein Trafficking and Organelle Identity in Eukaryotic Cells	
BIOL 8603	Cell and Molecular Biology of Early Development	

BIOL 8702	Muscle Biology
BIOL 8704	Cellular Homeostasis
BIOL 8801	Prokaryotic Molecular Genetics
BIOL 8802	Microbiology in the Environment
BIOL 8803	Microbial Diversity and Ecology
BIOL 8953	Seminar in Biochemistry and Genetics
BIOL 8956	Seminar in Cell and Developmental Biology
BIOL 8957	Seminar in Physiology
CHEM 6201	Physical Methods of Analysis
CHEM 6202	Spectrochemical Methods of Analysis
CHEM 6204	Analytical Separations
COUN 6050	Research Methods in Counseling

Total Credit Hours

18-19

Courses

TRME 6101. Introduction to Transfusion Medicine. 1 cr. hr.

An overview of transfusion medicine from basic science concepts to the regulations and quality systems required, along with research concepts and presentation skills. Principles of basic genetics, immunology and red blood cell biochemistry are investigated and applied to blood group serology. An in-depth look at the regulations and accreditations governing the field of transfusion medicine including FDA, CLIA and AABB. Includes an introduction to quality management systems and how they apply to blood collection, donor laboratory testing and patient laboratory testing. Provides an overview of principles of research and an introduction to preparing for oral and written presentation. Prereq: Cons. of prog. dir.

TRME 6201. Immunohematology 1. 2 cr. hrs.

An in-depth study of the human blood groups whose antigens are carbohydrate-based to include the ABO and P blood group systems and Lewis system. Discusses history, genetics and biochemistry of the carbohydrate-based antigens. Explores their relationship to transfusion therapy and disease epidemiology. Reviews principles of hemagglutination and complement system. Prereq: Cons. of prog. dir.

TRME 6202. Immunohematology 2. 2 cr. hrs.

An in-depth study of the human blood groups whose antigens are protein-based to include, but not limited to: Rh, LW, MNSs, Duffy, Kidd, Kell and Lutheran blood group systems. Discusses history, genetics and biochemistry of the protein-based antigens. Explores their relationship to transfusion therapy and disease epidemiology. Includes practical experience in problem solving patient or donor typing problems and identifying antibodies to blood group antigens. Prereq: Cons. of prog. dir.

TRME 6220. Essentials of Blood Collection and Testing. 3 cr. hrs.

A comprehensive investigation into the theoretical and practical basis involving the selection and processing of blood donors. Presents a thorough understanding of the physiological aspects of blood storage and transport. Emphasizes infectious disease testing as well as the FDA, AABB and CLIA regulations concerning testing. Prereq: Cons. of prog. dir.

TRME 6301. Management and Education in Transfusion Medicine. 3 cr. hrs.

A systematic approach in acquiring the fundamentals and principles of planning and implementing an educational program in the clinical setting. Offers practice of presentation skills in a classroom setting and state meeting. Also prepares the transfusion medicine practitioner to manage operational and fiscal affairs in a donor center or transfusion service. Prereq: Cons. of prog. dir.

TRME 6401. Anemias and Related Topics. 2 cr. hrs.

An advanced study in the pathological mechanisms underlying the production of human disease involving anemias and leukemias. Emphasizes autoimmune hemolytic anemias, drug-dependent immune hemolytic anemias and hemolytic disease of the fetus and newborn. Also discusses parentage testing requirements. Prereq: Cons. of prog. dir.

TRME 6402. Hemostasis and Transplantation. 2 cr. hrs.

A study of the procedures performed, as well as a complete understanding of disease process as it relates to serological and molecular detection of bleeding and clotting diseases. An in-depth look at the immune system as it relates to transplantation. A formal study of the aspects of histocompatibility, platelet and neutrophil immunology and bleeding and clotting disorders. Also discusses histocompatibility antigens and nomenclature in relation to transfusion and transplantation. Prereq: Cons. of prog. dir.

TRME 6501. Pathophysiology in Transfusion Medicine. 2 cr. hrs.

An advanced study in the pathophysiology of blood transfusion. Reviews indications for blood transfusion including blood component therapy. Also studies adverse events in transfusion medicine. Emphasizes practical aspects of blood management within a transfusion service. Prereq: Cons. of prog. dir.

TRME 6931. Topics in Transfusion Medicine. 1-3 cr. hrs.

In-depth study of concepts, theories, and laboratory techniques in the broad area of transfusion medicine which are not covered in regular courses. Prereq: Cons. of prog. dir.

TRME 6952. Colloquium in Transfusion Medicine. 0 cr. hrs.

Scholarly reports on selected topics in transfusion medicine/immunohematology. Attendance required of all full-time graduate students. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 6995. Independent Study in Transfusion Medicine. 1-3 cr. hrs.

Prereq: Cons. of prog. dir.

TRME 6997. Transfusion Medicine Capstone. 3 cr. hrs.

Project and concluding paper that integrates the subspecialty course work with transfusion medicine. Prereq: Cons. of prog. dir.

TRME 6998. Transfusion Medicine Project. 1 cr. hr.

Project and concluding paper on selected subject that integrates Specialist in Blood Banking course work. Prereq: Cons. of prog. dir.

TRME 6999. Master's Thesis. 1-6 cr. hrs.

Master's thesis for M.S.T.M. candidates. S/U grade assessment. Prereq: Cons. of prog. dir.

TRME 9970. Graduate Standing Continuation: Less than Half-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9991. Professional Project Continuation: Less than Half-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9992. Professional Project Continuation: Half-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9993. Professional Project Continuation: Full-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9994. Master's Thesis Continuation: Less than Half-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9995. Master's Thesis Continuation: Half-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.

TRME 9996. Master's Thesis Continuation: Full-Time. 0 cr. hrs.

Fee. SNC/UNC grade assessment. Prereq: Cons. of prog. dir.