Katz
Katz School
of Science and Health

Katz School Graduate Academic Catalog 2025-2026

Yeshiva University **Katz School of Science and Health**
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ABOUT THIS CATALOG

Unless otherwise stated in this document, this catalog supersedes all previous catalogs and academic information and policies and is binding on all Katz School of Science and Health graduate students at Yeshiva University, effective at the time they enroll. It was prepared based on the best information available at the time of publication. The University reserves the right to change tuition, fees, course offerings, regulations, policies, and admission and graduation requirements at any time without prior notice. However, students may continue a course of study in effect at the time they enrolled provided that they complete the program within the specified time period.

This catalog, posted on the YU website, is the official catalog. Printed versions are copies of the catalog. If there are corrections or changes, they will be published on the YU website.

TABLE OF CONTENTS

ABOUT THIS CATALOG TABLE OF CONTENTS

WELCOME TO KATZ SCHOOL YESHIVA UNIVERSITY POLICIES

- Equal Opportunity
- Accreditation
- Safety and Security
- Non-Discrimination and Harassment
- Accommodations for Students with Disabilities
- Student Conduct and Student Rights
- Privacy
- Use of University's Name
- Program Codes

ACADEMIC POLICIES, STANDARDS AND EXPECTATIONS

- Academic Calendar
- Attendance
- Time Limitations
- Course Load
- Grades
- Appeal of Final Grade
- Prerequisites
- Transfer of Credit
- Waiver/Substitution of a Required Course
- Registration
- Continuous Status
- Cross-Campus Registration
- Course Auditing
- Independent Study
- Directed Study
- Withdrawal from a Course
- Eligibility for Graduation
- Academic Distinction
- Diplomas
- Records and Transcripts
- Change of Name or Address

SATISFACTORY PROGRESS STANDARDS

- Good Academic Standing
- Academic Probation and Dismissal

CHANGE OF STATUS, LEAVES AND DISMISSAL

- Leave of Absence
- Official Withdrawal
- Procedures for Removal
- Readmission after Withdrawing from the University

CODE OF ETHICS

- Academic Integrity
- Cheating on Assignments and/or Exams

- Plagiarism
- Penalties and Procedures for Violating Academic Integrity Standards
- Notification Process
- Initial Review
- Hearing
- Decision
- Appeal
- Records
- Readmission after Dismissal
- Other Violation of Academic Integrity

SOCIAL MEDIA USE

- YU Student Technology Resources Use Handbook

GRIEVANCES

- Grievance Procedure

HEALTH REQUIREMENTS

- COVID Policy
- Immunization Forms
- Health Science Student Onboarding

STUDENT LIFE AND RESOURCES

- Student Services
- Academic Advisement
- Canvas
- Career Center
- Counseling Center
- Disability Services
- English for Graduate School and Work
- Graduate Assistantships
- Health Services
- Housing and the Transition to New York
- Library Services
- New Student Orientation
- New York City Experience
- Office of International Students and Scholars
- Office of Student Finance
- OneCard
- Parking for Student and Alumni
- Research Opportunities
- Scholarships
- Shuttle Transportation
- Student Organizations and Clubs

PROGRAM DESCRIPTIONS: STEM

- MS in Artificial Intelligence
- MS in Biotechnology Management and Entrepreneurship
- MS in Computer Science
- MS in Cybersecurity
- MS in Data Analytics and Visualization
- MS in Digital Marketing and Media
- MA in Mathematics

- PhD in Mathematics
- MA in Physics
- MS in Quantitative Economics
- MS in Quantitative Finance

PROGRAM DESCRIPTIONS: HEALTH SCIENCES

- OTD in Occupational Therapy
- MS in Physician Assistant Studies
- MS in Speech Language Pathology

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WELCOME TO KATZ SCHOOL

The Mordecai D. and Monique C. Katz School of Science and Health at Yeshiva University (Katz School) gives students the opportunity to further their intellectual and professional pursuits and become a part of one of U.S. News and World Report's top 100 universities in the United States. Katz School is committed to delivering a world-class education in emerging and expanding disciplines, to connecting students with thought-leaders and employers in New York City and beyond, and to creating an exemplary student and faculty experience.

Our programs focus on Applied Sciences and Mathematics; Technology, Data, and Design; Health Sciences; and those emerging and expanding professions that are being transformed by technology innovations. Graduate students can earn master's degrees in Artificial Intelligence, Biotechnology Management and Entrepreneurship, Computer Science, Cybersecurity, Data Analytics and Visualization, Digital Marketing and Media, Mathematics, Physician's Assistant Studies, Quantitative Economics, or Speech- Language Pathology, and doctoral degrees in Mathematics and Occupational Therapy. In each of these highly specialized programs, the curriculum is informed by industry, providing our graduates with tools that will serve them well into their careers.

An Exceptional Education

Whether on campus or online, courses are taught by an exceptional group of faculty, each committed to the principles of quality instruction. Unlike many professionally oriented schools, the faculty endeavor to teach the science and strategies behind the skills, so that students can have a knowledge base that will help them to thrive long after graduation.

Rather than relying on tests and exams, courses are frequently project based, so that students are evaluated on what they build and do. As a result, students graduate with a portfolio of work that will give them a competitive edge in the job market. Faculty also recognize the critical role of technology in enabling digitally connected and data-rich organizations and therefore incorporate the latest software and lab equipment into their courses.

An Experience that Matters

We challenge each of our students and faculty to lead with values—kindness, honesty, generosity, integrity, and justice towards others—and to leave the world a little better than they found it. We are committed to the belief that it is not only the destination that counts but the values we bring to the journey.



Paul Russo
Vice Provost and Dean, Katz School of Science & Health

YESHIVA UNIVERSITY

Yeshiva University is the world's premier Jewish institution for higher education. Rooted in Jewish thought and tradition, it sits at the educational, spiritual and intellectual epicenter of a robust global movement that is dedicated to advancing the moral and material betterment of the Jewish community and broader society, in the service of God.

In September 2017, Ari Berman was inaugurated as the fifth president of Yeshiva University. He succeeded Richard M. Joel, who was inaugurated in 2003, and Norman Lamm, who had held the office since 1976. President Berman's two other predecessors were Bernard Revel, president from 1915 to 1940, and Samuel Belkin, who served from 1943 to 1975.

Visit https://www.yu.edu for more information about Yeshiva University.

UNIVERSITY POLICIES

Equal Opportunity

Yeshiva University has a long-standing commitment to equal opportunity and affirmative action. We apply every good faith effort in achieving nondiscrimination and equality of opportunity in employment and in all spheres of academic life. All University-wide decisions regarding faculty, staff and students are based on equitable and equally applied standards of excellence.

Unlawful harassment procedures have been established, both as a legal obligation under applicable law and as a visible and formal expression of institutional policy. The University's policy is designed to insure that recruitment, hiring, training, promotion, and all other personnel actions take place, and all programs involving students, both academic and non-academic, are administered without regard to race, religion, color, creed, age, national origin or ancestry, sex, marital status, physical or mental disability, veteran or disabled veteran status, genetic predisposition/carrier status, sexual orientation, gender identity and expression, citizenship status, sexual and other reproductive health decisions, or any other characteristic protected by any applicable law, ordinance or regulation. In addition, University policy is designed to maintain a work and academic environment free of harassment and intimidation.

Accreditation

Yeshiva University is accredited by the Middle States Commission on Higher Education and by the appropriate professional agencies: the American Psychological Association, the American Bar Association, the Commission on Accreditation of the Council on Social Work Education, the Association of Institutions of Higher Learning for Jewish Education, and the National Board of License for Hebrew Teachers. The Master of Science program in Speech-Language Pathology is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language- Hearing Association. The Occupational Therapy Doctorate program is fully accredited by the Accreditation Council for Occupational Therapy (ACOTE) of the American Occupational Therapy Association (AOTA). The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) has placed the Physician Assistant Program on Accreditation-Probation until its next review in March 2026.

Safety and Security

Yeshiva University takes its responsibility for on-campus security very seriously and makes every effort to offer its students, faculty and staff a safe and comfortable environment by working closely with the local community and with law enforcement agencies.

Notice of Access to Campus Crime Statistics, the Campus Security Report, and Information on Registered Sex Offenders

The University's Advisory Committee on Campus Security will provide, upon request, all campus crime statistics as reported to the U.S. Department of Education. The U.S. Department of Education maintains campus crime statistic information on its website at https://ope.ed.gov/campussafety/#/. In addition, the University's annual security reports, which includes all campus crime statistics, and the University's annual fire safety reports are available on the University's website at https://www.yu.edu/safety-security/policies-procedures-reports or may be obtained from the University's Chief of Security, Paul Murtha (212-960-5221/security@yu.edu). The annual security report for each campus includes: (i) campus crime statistics for the most recent calendar year and the two preceding calendar years; (ii) campus policies regarding procedures and facilities to report criminal actions or other emergencies on campus; (iii) policies concerning the security of and access to campus facilities; (iv) policies on campus law enforcement; (v) a description of campus programs to inform students and employees about campus security procedures and practices and to encourage students and employees to be responsible for their own security and the security of others; (vi) campus crime prevention programs; (vii) policies on illegal drugs and alcohol; (viii) where information provided by the State on registered sex offenders may be obtained; and (ix) policies on campus sexual assault programs aimed at the prevention of sex offenses and procedures to be followed when a sex offense occurs.

While we hope that emergency events on campus are unlikely, it is vital to be prepared to react appropriately during emergencies to ensure your safety. To get prepared and learn about emergency response at Yeshiva University, visit our Emergency Readiness website: https://www.yu.edu/safety-security/emergency.

Non-Discrimination and Harassment

Yeshiva University complies with all federal, state and local regulations governing Non-Discrimination and Harassment including Title VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments Act of 1972. In keeping with its long-standing traditions and policies, Yeshiva University provides equal opportunity for faculty, staff and students within admissions and employment, and those seeking access to programs based on individual merit. University-wide policies and procedures pertaining to discrimination and harassment have been established, both as a legal obligation under applicable law and as a visible and formal expression of institutional policy. The University's Nondiscrimination and Anti-Harassment Policy and Complaint Procedures can be found online at https://www.yu.edu/student-life/resources-and-services/policies. This policy includes information about filing a report, seeking a response and options for confidential disclosure. The University will respond to all complaints promptly, thoroughly, and impartially.

Retaliation is prohibited against anyone who filed and/or participated in the investigation of a complaint, even if the complaint is unsubstantiated. When warranted, the University will take appropriate, corrective action to remedy all violations of this policy, up to and including termination and/or expulsion. Administrative and investigative responsibility relating to enforcement of the policy has been assigned to the University's Title IX Coordinator, Dr. Chaim Nissel, at (646) 592-4201. To contact the Title IX office, please email titleix@yu.edu. For additional information, please visit www.yu.edu/titleix.

Accommodations for Students with Disabilities

The Office of Disability Services assists students with documented disabilities or medical conditions in obtaining reasonable accommodations. Some of the disabilities accommodated include physical, emotional or learning disabilities, ADHD, hearing impairments, and visual impairments. Visit the following website for more information about documentation guidelines and available accommodations: https://www.yu.edu/student-life/resources-and-services/disability-services/students.

Students who wish to request accommodations for a documented disability that affects his/her academic performance and students who suspect that they may have a disability are encouraged to contact the Office of Disability Services:

- Beren Campus: Rochelle Kohn, (646) 592-4132 /rkohn1@yu.edu
- Wilf Campus: Abigail Kelsen, (646) 592-4280 /akelsen@yu.edu
- Resnick Campus: Rochelle Kohn, (646) 592-4132 /rkohn1@yu.edu

Student Conduct and Student Rights

Please visit https://www.yu.edu/student-life/resources-and-services/Standards-Policies and review the University policies on student conduct and student rights, including:

- Behavior Policy for Athletics
- Anti-Bullying and Hazing Policy for Students
- Credit Card Marketing Policy
- Drug and Alcohol Policy
- Medical Form
- Requirements for Working with Minors
- Romantic Relationships Policy
- Sexual Assault Student Bill of Rights
- Title IX (Non-Discrimination and Anti-Harassment Policy)
- YU Student IT Handbook

Additional student consumer information can be found at: https://www.yu.edu/oir/student-consumer- information.

Privacy

In accordance with the provisions of the Family Educational Rights and Privacy Act of 1974, as amended (Section 438 of the General Educational Provisions Act, 20 USC 1232g), also known as "FERPA," Yeshiva University has adopted certain policies to protect the privacy rights of its students with respect to their education records. FERPA affords students certain rights of access to their education records. FERPA also limits the persons to whom the University may disclose a student's education records and permit certain disclosure without the student's written permission. Please visit the YU FERPA webpage https://www.yu.edu/ferpato obtain the Yeshiva University FERPA Policy Statement.

Use of the University's Name

The name and logos of Yeshiva University, as well as of its constituent schools (the "Marks"), are owned by Yeshiva University. Students may use the Marks to identify their attendance at Yeshiva University and/or its constituent schools but may not use their University status (or any of the Marks) in any manner which could be construed as implying University (or school) endorsement of any statement, product or service. Any other use of the Marks or any of their components in print or digital/electronic media (including on any product or service) is prohibited without written permission from the Office of the General Counsel.

For use of the Marks by official student organizations and clubs, please see "Use of Yeshiva University Marks by Student Organizations and Clubs".

Program Codes

All programs are registered by the New York State Education Department and meet its educational requirements.

HEGIS Code	CIP Code	Title	Degree
1701.00	27.0304	MA and PhD in Mathematics	Master of Arts
1902.00	27.0103	MA in Physics	Master of Arts
0701.00	11.0102	MS in Artificial Intelligence	Master of Science
0499.00	51.0720	MS in Biotechnology Management and Entrepreneurship	Master of Science
0701.00	11.0701	MS in Computer Science	Master of Science
0701.00	11.1003	MS in Cybersecurity	Master of Science
0702.00	30.7101	MS in Data Analytics and Visualization	Master of Science
1208.00	51.2306	Occupational Therapy Doctorate	Doctorate in Occupational Therapy
1299.10	60.0902	MS in Physician Assistant Studies	Master of Science
1220.00	51.0203	MS in Speech-Language Pathology	Master of Science
1208.00	51.2306	Occupational Therapy Doctorate	Doctorate in Occupational Therapy

ACADEMIC POLICIES, STANDARDS AND EXPECTATIONS

Academic Calendar

Yeshiva University operates on the semester system. The academic year consists of three semesters: two 15-week semesters (fall and spring) and one 10-15-week semester (summer); the semester length includes examinations and/or final projects. The fall term runs from late August or early September to the end of December; the spring term runs from late January to late May. The summer term runs from late May to mid-August. Classes may meet Sunday through Friday. The Academic Calendars for Fall, Spring and Summer can be found online at https://www.yu.edu/registrar/grad-calendar/.

Attendance

For programs that meet in face-to-face format, students are expected to attend all scheduled classes in their entirety. Students who fail to fulfill this requirement will receive an academic penalty appropriate for the course work missed.

Students may not miss 20% or more of their scheduled class. If a student misses 20% or more of a course during the semester, they will receive a final grade of "F." This grade will be reflected on the student's official university transcript.

Attendance policies in the Health Science programs differ from other programs in Katz School. Attendance policies specific to Health Science programs are as follows:

- Speech Language Pathology (SLP): In the SLP program, students may not miss 20% or more of any course. If a student misses 20% or more of a course during the semester, they will receive a final grade of "F." This grade will be reflected on the student's official university transcript.

- Physician Assistant (PA): In the PA program, students may not miss 10% or more of any course. If a student misses 10% or more of a course during the semester, they will receive a final grade of "F." This grade will be reflected on the student's official university transcript.

- Occupational Therapy (OTD): In the OTD program, students may not miss 10% or more of any course. If a student misses 10% or more of a course during the semester, they will receive a final grade of "F." This grade will be reflected on the student's official university transcript.

Attendance for clinical externships, affiliations, internships, or rotations are regulated by each academic program.

If the student is absent because of a disability which is documented with the Office of Disability Services at Yeshiva, falls ill or there are other extenuating circumstances, the student must inform the instructor in advance. The instructor may require appropriate documentation to make any exception to this policy.

Time Limitations

A student must complete the requirements for the master's or doctoral degree within five years of the first semester the student enrolled in the program, unless the program requires more or less time. Students who go beyond this limit will need permission from their Program Director to continue their studies in Katz School. If permitted to continue, these students may be required to take additional, more current, coursework.

Course Load

To be considered a full-time Katz School graduate student, the student must be enrolled in at least 9 credits during a 15-week semester. Students taking 6 to 8.9 credits are considered half-time, and students taking 0.1 to 5.9 credits are considered part-time. Students with low academic averages may be subject to restriction on their course load. There also may be financial aid implications for falling below full-time status.

Grades

How do I view my grades?

You can get your grades by

1. Go to InsideTrack
2. Log in with your username and password
3. Go to the three bars (**main menu**) on the top left of the page
4. Go to **Students**
5. Go to the **Student Frequently Used Links** card
6. Click on **Student Dashboard**
7. Click on **View My Grades**

Description of Grades

There are two categories of grades that can be recorded on a student's transcript. Academic grades note academic achievement in a course of study; administrative grades note a student's status in a course of study.

ACADEMIC GRADES				ADMINISTRATIVE GRADES	
Quality of Performance	**Letter Grade**	**Range %**	**GPA/ Quality Pts.**	**GRADE**	**DESCRIPTION**
Excellent/ Very Good	A	94- 100	4.000	G	Stopped attending without filing an official withdrawal form (counted as failure)
	A-	90 – 93.9	3.667	I	Incomplete
Good	B+	87 - 89.9	3.333	L	Audit (no credit)
Satisfactory,	B	83 - 86.9	3.000	W	Withdrawal without penalty or prejudice
Below Average, need improvement	B-	80 - 82.9	2.667	Note that credit is given only for grades A through C and P. No credit is given for grades F, G, I, L, N, or W.	
Poor	C+	77 - 79.9	2.333		
	C	70 - 76.9	2.000		
Failure	F	< 70	.000		

P is used for independent study courses at YU and for approved-for-credit internships. Program Directors must approve whether a student can take a course graded under the A/P/N option before the student begins the course.

I grades may be issued to accommodate unavoidable delays in the completion of course requirements. A student receiving an **I** grade must have completed at least 50% of the course with a minimum of a B-. The student and faculty must come up with an agreed upon plan and timeline for completion of the coursework. This will be documented and signed by the faculty and student. Once the agreement has been signed, it will go to the program director for review and potential approval. If the course work is not submitted by the agreed upon date, the "I" will be changed to an "F".

W (withdrawal) from a course after the last date to drop a course without permission requires filing an Add-Drop Form with the Office of the Registrar and written permission of the Office of the Dean.

When the numerical value is multiplied by the credit value of a course, the resulting figure is the number of quality points. The student's average is computed by dividing the number of quality points earned by the total number of credits completed with a grade of A through G. The average is truncated to the third decimal place.

Appeal of Final Grade

If a student believes a grade is incorrect, he/she must first meet with the instructor. If the instructor chooses to change the grade, they will complete a Change of Final Grade form and send to the Office of the Registrar. The instructor has final say on all grade changes except in extraordinary circumstances.

A final grade may also be changed by the instructor for a computational error or clerical recording error.

Prerequisites for Admissions

To receive credit for a prerequisite course, a student must have received a B or better in the course. Exceptions can be made at the discretion of the Program Director. However, individual programs may require higher grades.
A course may not be taken if the student has not received the minimum grade required in a prerequisite course. The student must repeat the prerequisite course, or an acceptable substitution approved by the Program Director.

Transfer of Credit

At the discretion of the Program Director, up to 9 credits towards the graduate degree may be transferred from an outside institution. Exceptions can be made with the approval of the Program Director and Dean/Dean's appointee.

Any student who wishes to transfer credit from another institution must submit a Transfer of Credit Form to the Office of the Registrar. This form must be approved and signed by the Program Director. Students must also include an official transcript showing the course they wish to transfer with a final grade and any course descriptions or syllabi for the course. All Transfer of Credit Forms for courses taken at another institution prior to beginning the program should be submitted during the student's first semester, and it is at the discretion of the Program Director to decide which courses may transfer. All Transfer of Credit Forms for courses taken at another institution after the student is enrolled in a Katz School graduate program should be submitted during the start of the following semester, and it is at the discretion of the Program Director to decide which courses may transfer.

Only graduate coursework will be accepted as transfer credit. Credit will not be granted for any course transferred from another institution with a grade below B or for a Pass/Fail course. Courses that are transferred will not factor into the student's GPA in Katz School graduate program.

No transfer credit is accepted by the PA or OTD program.

Waiver/Substitution of a Required Course

In some cases, where students can show proof of relevant work experience, a Program Director may grant the student a waiver for the required course. Students who wish to receive a waiver for a course requirement or substitute a program elective for a required course must submit a request form to the Office of the Registrar by the end of the student's first semester. Students who are waived from a required course will not receive credit for the course but will no longer have to fulfill that course to meet graduation requirements. There will be no waiver or substitution of courses in the PA or OTD curriculum. Students must complete all courses in the SLP, PA and OTD programs.

Registration

Before their first semester, incoming graduate students will be provided with instructions by the school on how to register for their courses. Continuing students will register online through YU Portal (https://insidetrack.yu.edu).
Continuing students are expected to register each semester during the specific registration period; registration dates will be published in the Academic Calendar. Students who register outside of the designated registration period may be subject to late registration fees.

Semester Credit Limitations

Full time graduate students enrolled in STEM programs should register for 9 credit hours per semester. With permission from the program director, they may take up to 12 credit hours per semester. Requests to exceed this 9-credit limit must be approved by the program director and are granted only in exceptional circumstances. This limitation does not apply to graduate Health programs.

Continuous Status

Students must maintain continuous registration with the program until graduation, including registering for research requirements (as specified by individual programs). Any student who neither registers nor secures an official leave of absence for any semester will be withdrawn from the Katz School.

Cross-Campus Registration

In certain cases, and with the permission of the Program Director, students may be eligible to take a course at another Yeshiva University school. The student is responsible for paying tuition to the host school unless a previous agreement is arranged between the host and home school and is approved by the Office of Student Finance. Any student who wishes to take a course at another YU school must notify the Office of the Registrar prior to the beginning of the semester and receive written approval from his/her Program Director and other appropriate YU administrators. The Program Director will indicate if the course will count towards the student's program degree requirements, and if so, which requirement it fulfills. Only graduate level courses can be applied toward the program degree requirements. The host school may require the completion of additional forms.

Course Auditing

Katz students may be eligible to audit a course in another Katz program with the permission of the Program Director of the other program and other YU administrators. The University does not permit a student to audit or sit in on classes the student is not officially registered for.

Independent Study

An independent study is an individualized project/course conducted in some programs under the guidance and supervision of a faculty advisor with the approval of the Program Director. A request to take an independent study may be granted only under the following circumstances:

- To pursue a specialized topic that is not offered under the program's course listings.
- When a student is prevented from graduating because a required course is no longer offered

Students interested in completing an independent study must submit the Application for Independent Study to the Office of the Registrar. The form should be filled out by both the student and the faculty advisor and signed by the Program Director.

Directed Study

Students in certain programs who need to take a course listed in the catalog during a semester in which the course is not offered may be permitted to take that course through directed study.

To request a directed study:

- The student must seek permission from the Program Director and work under the supervision of a faculty sponsor. The student will be responsible in finding a sponsor for their work.
- During the regular registration period for the semester in which the student plans to do the work, the student must submit an Application for Directed Study Form to the Office of the Registrar. The faculty sponsor must list required examinations and papers and describe the nature of the direct supervision of the student.
- The Program Director considers each application and must approve it before directed study work begins.
- At the end of the term, the faculty sponsor should submit a grade to the Office of the Registrar. The course is listed on the student's record with its regular number and title.

Except under the most unusual circumstances, a student may take only one directed study course per semester. Directed study may, in exceptional cases, be done during the summer. Regular per credit tuition is charged.

Directed studies are treated as regular courses and are counted as part of the student's regular workload. If the work is not completed, the student must withdraw within regular deadlines. If the work is not completed at the conclusion of the semester, the student may apply for an extension and, if approved, will temporarily receive a grade of Incomplete. See the "Grades" section for more information about Incomplete grades.

Withdrawal from a Course

Students may drop classes through Inside Track from the start of the designated registration period until the "last day to drop a course" as listed on the Academic Calendar. Students will be required to fill out an Add/Drop Form found on the Registrar's website. If permission is granted to withdraw from a course after the allowed date, the course is listed on the permanent record with a grade of "W." Students should be aware of the refund dates for each semester. Students may not receive a full refund for courses dropped even if they are dropped before the "last day to drop a course without a "W." See the "Grades" section for more information about Withdrawal.

The typical Fall/Spring/Summer tuition refund schedule is listed below. Please note that registration and other fees will not be refunded.

COURSE WITHDRAWN BY:	PERCENT OF TUITION REFUNDED:
1st week of semester	100%
2nd week of semester	75%
3rd week of semester	50%
4th week of semester	25%
After 4th week	0%

Please see the Office of Student Finance website for more details about the tuition refund schedule and fees: https://www.yu.edu/osf/contact

Eligibility for Graduation

In order to be eligible for a degree, students must complete all required coursework and other requirements for the specific program as published in the Academic Catalog for the semester in which the student first enrolled. Students who fail to complete all requirements before the date of degree conferral will need to re-apply for the next possible degree date. Graduate students must have a minimum cumulative 3.0 GPA to graduate unless their specific program requires a higher GPA. Individual exceptions may be made with the approval of the Program Director and Dean.

Degrees are conferred in September, January, and May each year. A student applies for a degree by filing an Application for Graduation Form in the Office of the Registrar. Students will not be eligible to receive a degree unless they have submitted the Application for Graduation Form by the appropriate deadline as published in the Academic Calendar.

Should the degree not be awarded at that degree date, a new application must be filed prior to the degree date deadlines thereafter until the degree is awarded. Graduation fees paid initially remain valid for two (2) years and need not be paid again unless more than two (2) years elapses between payment and award of degree.

Students are bound by the curriculum that was in effect during the first semester they enrolled in the program. Students are responsible for meeting regularly with their academic advisors and checking their unofficial transcripts to ensure they are on track to graduate.

Academic Distinction

To receive distinction at graduation students must be in the top 10% of their graduating class and have achieved a minimum grade point average of 3.8.

Diplomas

Diplomas: are mailed within 8 weeks after the conferral date directly from our diploma vendor, **Michael Sutter Company**. The last name on the student's diploma must match the last name on the student's record at the School. Duplicate or revised diplomas can be secured under certain circumstances. The acceptable reasons for a duplicate diploma request are listed here:

https://www.yu.edu/sites/default/files/legacy/uploadedFiles/Academics/Registrar/Forms/YC/Duplicate%20Diploma%20Request%20Form.pdf. More information is available on the Office of the Registrar website at www.yu.edu/registrar.

Records and Transcripts

Students may generate unofficial transcripts at no cost in the Office of the Registrar or online at https://www.yu.edu/registrar/registration. Current or former students who want official transcripts should visit www.yu.edu/transcript, where they can find information about fees, regulations, and procedures governing the issuance of official transcripts.

A student's official records are sent only in the form of a complete transcript. No partial records are sent. Transcripts list courses in progress without grades. Students who believe there is an error in their academic record (e.g., in a grade, average, credit value, or course) must promptly contact the Office of the Registrar (see www.yu.edu/registrar for contact information).

Change of Name or Address

A student who wishes to change either a first or last name on School records must file a Request for Change of Name on School Records Form in the Office of the Registrar. Students who change their home or local residences are required to notify the Office of the Registrar within 10 days by updating their addresses and phone numbers online at https://www.yu.edu/registrar/registration. A student is responsible for all mail sent to the old address if his/her address has not been updated.

SATISFACTORY PROGRESS POLICIES

Good Academic Standing

All students must maintain a minimum grade point average of 3.0 cumulatively and must make satisfactory progress toward a degree within the time frames detailed in the Time Limitations provision. All students must meet these standards of good academic standing and satisfactory academic progress. Students not meeting these standards will then be designated as "on probation," with the expectation that the student will return to good academic standing by the end of the following semester. Students on probation may lose any scholarships that have been awarded and may become ineligible for financial aid. These standards are applicable to all students. They are required for certification by New York State for financial assistance under Section 145-2.2 of the Regulations of the Commissioner of Education and are required by federal regulations to receive aid under Title IV of the Higher Education Act.

Academic Probation and Dismissal

Good Academic Standing: Students are always expected to remain in good academic standing in their respective programs. Not remaining in good academic standing changes the student's status to "on probation," with the expectation that the student will return to good academic standing by the end of the following semester. Not being in good academic standing may result in dismissal from the University, and/or a change to Financial aid.

Health Science programs, including Speech-Language Pathology, Physician Assistant, and Occupational Therapy, have their own specific standards and procedures for academic standing, probation, repeating courses, and dismissal, which reflect the professional requirements of those disciplines and accreditation requirements. These policies are outlined in the individual program handbooks, which take precedence over general school policies. Students enrolled in such programs are held accountable to the standards and procedures specified in their respective handbooks.

Dismissal at the End of the First Semester: If in the first semester of study, a student earns an "F" grade (fails a course), two "C" grades ("C" or "C+"), or has a cumulative GPA below 3.000, the student may be dismissed from the program.

Probation: A student who earns an "F" grade (fails a course), two "C" grades ("C" or "C+") or has a cumulative GPA below 3.000 or a GPA below 3.000 for any semester will be placed on academic probation beginning in the following semester (if not otherwise dismissed from the program). A student on probation will have to improve their cumulative GPA to at least 3.000 by the end of the semester. Failure to achieve a cumulative GPA of at least 3.000, or receiving an F or two "C" grades ("C" or "C+") may result in dismissal from the Program.

Probation Advisement Process

In general, students who are "on probation" will receive a letter from the Program Director that outlines the reason for the academic probation and a date for a performance review meeting with the Program Director or the student's advisor. After the meeting, the student will be provided with a letter outlining a success plan by the Program Director, the terms of which must be met by the student, in order to return to good academic standing. The student must sign and return the letter acknowledging their understandings and responsibilities. The signed letter is sent to the Katz Registrar for processing. In the event that the student does not receive a letter from the Program Director to initiate probation advisement process, it is the student's responsibility to reach out to the Program Director or their advisor to initiate the process.

Where applicable, during their academic probation students may not be permitted to apply for an externship or internship or attend an externship or internship they already received.

Academic probation is documented on the student's transcript. Being placed on academic probation may impact a student's financial aid. Please contact the Office of Student Finance for more information.

Making Up an "F" grade (failing a course): If a student receives an "F" grade in any of their courses, the student (if not dismissed from the program) must repeat and pass the same course. The grade earned from the repeated course will replace the "F." The "F" will remain on the student's transcript but will ~~not~~ be included in their cumulative GPA.

CHANGES OF STATUS

Katz School requires the student to be continuously enrolled each semester as required by the student's program until their degree is granted. To maintain continuous enrollment, students must register each semester required by their individual program or take a leave absence.

Leave of Absence

Students who wish to leave the university temporarily should contact the Office of the Registrar for a leave of absence application.

Leave of Absence

Prior to the start of a semester, students who intend to absent themselves from the University for the semester must file a Leave of Absence Form. The form should be filed by the end of the Add Period (usually the end of the first week of the semester). Students may apply for a leave of absence for a maximum of 180 days.

While students may be absent for more than one semester, but no more than 180 days, a leave of absence will only be granted for a maximum of one semester per 12-month period. Students seeking more than one semester LOA should be aware that financial aid and loan forbearance may be impacted.

Additionally, students who absent themselves for two or more consecutive semesters may need to apply for readmission.

Please consult with your School, as each School may have independent readmission policies.

Please Note: Immigration regulations require that students in F-1 status register and attend school full-time every semester. Please contact the Office of International Students and Scholars (OISS) before dropping below full-time or if you are considering a leave of absence.

Official Withdrawal

If a student chooses to withdraw from their program, they must fill out the Official Withdrawal Form and submit it to the Registrar's Office. If the student is registered for courses at the time of withdrawal, they will be subject to refund amounts as outlined in the academic calendar. Based on the timing of the student's withdraw, the student may receive a **W** on their transcript. The school's academic calendar may be referenced for specific dates.

Students who are registered for courses at the time of their withdrawal will be subject to the tuition refund rates in effect on the date of their withdrawal. Before the student withdraws from a program, the student must contact the Office of Student Finance regarding deadlines for tuition reimbursement and to address related financial responsibilities.

Procedures for Removal

When it comes to the attention of any member of the University community that a student may pose a threat to the health and safety of themselves and/or others, he/she should immediately take reasonable steps to notify his/her supervisor, the applicable Program Director and/or the Dean of the School. (If so notified, the supervisor and Dean should in turn notify the applicable Program Director.) The Program Director then should take immediate action to assess the nature and magnitude of the threat to the student and to others, which may involve consultation with others including counseling and other relevant support services. In accordance with applicable law and regulations, procedures should be followed to ensure that a student considered for involuntary leave is not subject to an adverse action based on unfounded fears, prejudice, or stereotypes. A psychological, psychiatric, or medical evaluation by a healthcare provider may be necessary to determine if an involuntary leave of absence is necessary or appropriate. The student may be asked to provide relevant psychological or medical records from his/her healthcare provider.

To the extent practicable, a student whose involuntary leave is under consideration will be informed in person, if practical, or in writing, and will be provided with an opportunity to be heard in an interview with the appropriate counseling staff and/or administrative official prior to any such decision.

A student who is placed on involuntary leave may appeal the decision to the Dean within 10 business days of the decision. The appeal should be in writing and set forth the basis for the appeal. The Dean or his/her designee will review the appeal and his/her decision will be considered final.

In cases of a safety emergency, a student may be removed from the University campus. To the extent practicable, the student will be provided with notice and an opportunity to be heard in an interview with the appropriate counseling staff and/or administrative official prior to any such decision. The student also may appeal the decision as set forth in the preceding paragraph.

The University reserves the right to make appropriate arrangements regarding the health and safety of the student.

A student placed on involuntary leave must remain off campus for the duration of their leave. A student on involuntary leave may not visit the campus or any other facility owned by the University without written approval from a University official.

The School will notify all relevant parties of the leave of absence and/or removal from campus.

A student's continuance on the rolls of the University; the receipt of academic credits, honors, and awards; graduation; and the conferring of any degree, diploma, or certificate upon a student are entirely subject to the disciplinary powers of the University and to the student maintaining high standards of ethical and academic conduct.

A student's academic standings may be changed to "on probation" or the student may be dismissed at the discretion of the Dean at any time for infringement of these standards.

Readmission after Withdrawing from the University

A student who neither registers nor secures an official leave of absence for any semester will be considered to have withdrawn from the School. A student who wishes to resume studies may have to apply for "readmission." Students who withdrew (whether voluntarily or involuntarily) from the School and wish to apply for readmission must follow the regular admissions procedures. Their admission will be subject to the program admissions criteria in effect at the time of application for readmission.

CODE OF ETHICS

Academic Integrity

The submission by a student of any examination, course assignment, group work, or degree requirement is assumed to guarantee that the thoughts and expressions therein not expressly credited to another are literally the student's own. Evidence to the contrary will result in appropriate penalties, described below.

Cheating on Assignments and/or Exams

Cheating is an affront on academic integrity and ethics. Any instance of dishonesty undermines your work and the work of your classmates and the University.

Plagiarism

In defining plagiarism, this policy distinguishes between Intentional Misrepresentation (which is deemed to constitute plagiarism) and Misuse of Sources. These are two clear extremes, but this policy also recognizes that there can be a continuum between them.

Intentional Misrepresentation occurs when a student deliberately uses someone else's language, ideas, or other original (not common knowledge) work without acknowledging the source. Examples include but are not limited to when a student submits an Assignment that: a) is downloaded from an Internet source and/or obtained from a paper mill; b) is obtained from someone else (including another student); c) contains part or all of the writings of another person (including another student), without acknowledgment of the source; or d) contains passages that were cut and pasted from an Internet source, without acknowledgement of the source.

Misuse of Sources is the unintentional misappropriation of the language, ideas, and work of others due to a lack of understanding of the conventions of citation and documentation, including paraphrasing, quoting, and the parameters of common knowledge.

Students are responsible for knowing how to quote from, paraphrase, summarize, and cite sources correctly. However, when a student has attempted to acknowledge a source but has not done so fully or completely, the instructor, perhaps in consultation with other faculty, administrators, or an academic integrity panel, may determine that the issue is Misuse of Sources or unsuccessful writing, rather than Intentional Misrepresentation.[1]

Other Violations of Academic Integrity

In addition to cheating and plagiarism, other examples of academic integrity violations include, but are not limited to:

- Assisting or attempting to assist another student in an act of academic dishonesty.
- Providing papers, essays, research, or other work to aid another student in Intentional Misrepresentation.

- Engaging in unauthorized cooperation with other individuals in completing assignments or examinations.
- Submitting the same assignment, in part or whole, in more than one course, whether at YU or another institution, without prior written approval from both faculty members.
- Submitting fraudulent documents during the admissions process or afterwards.
- Impersonating another person's identity., including but not limited to impersonating a faculty member, staff or other student.

Penalties and Procedures for Violating Academic Integrity Standards

Accordingly, students or student groups, who act in a dishonest manner by cheating or plagiarizing on any examination, course assignment, or degree requirement are subject to penalties under the following procedures. Students working on a group or team assignment who are found violating academic integrity standards shall ALL be considered in potential violation. Each student's role in the violation shall be individually reviewed by the Program Director and faculty; however, the group may be held accountable as may be determined by the Program Director and faculty.

Please Note: If a faculty member determines that a student or student group unintentionally misused sources on an assignment, he/she/they may lower the grade on the assignment in question (including lowering to a grade of "F"). No additional penalty should be imposed.

Academic Integrity Violation Review and Appeal Policy

Reporting an Alleged Violation

Any member of the Yeshiva University community may initiate a report of suspected academic integrity violations, including cheating, plagiarism, or other forms of misconduct. Reports should be submitted as soon as possible, and (to the extent possible) no later than 5 business days after the incident occurred.

Reports may be made directly to the applicable Program Director using the official Incident Report Form, or may be submitted to a faculty member. In such cases, the faculty member is responsible for forwarding the report and any supporting information to the Program Director within 5 business days of receiving the complaint. The Program Director will then initiate an investigation in accordance with the procedures outlined below.

Step 1: Initial Review by Program Director

- The Program Director will meet individually with the reporting person and/or faculty member and the student accused of violating the integrity policy to review the relevant evidence.
- The Program Director must complete their review and issue a written determination within 10 business days of receiving the report. This determination will include: a summary of the evidence, the charges (if any), and the penalties (if applicable).
- The Program Director will send this written determination to the student.

Step 2: Student Response

If charged, the student must respond within 5 business days of receiving the Program Director's decision. They may either:

- Accept responsibility and the associated penalties, or deny the allegation and submit a written appeal for review by the Committee on Academic Standards and Integrity (CASI); or,
- If the student accepts responsibility, the penalty determined by the Program Director will be implemented without further review.

Step 3: Appeal Process – CASI

1. If the student appeals, the case is referred to the CASI, a three-person body appointed by the Dean. The Committee will consist of: One School Program Director (not involved in the original case); one faculty member, and one representative from the Katz Graduate Student Association.

2. The CASI chair will notify the student in writing of the date, time, and location of the hearing. The student may: Consult with the School Student Advocate, a neutral resource available throughout the process to help the student understand their rights, timelines, and the type of documentation that may support their position; bring written materials and witnesses to the hearing; and shall not bring external advocates or advisers (including family members or attorneys)
3. The Student Advocate may attend the hearing in a non-participatory role but does not assist in preparing arguments or evidence.
4. The CASI will consider all relevant evidence, may request additional information from involved parties, and will determine whether the original academic integrity violation occurred. Their decision must be issued within 5 business days of the hearing, and the full review is expected to be concluded within 30 business days of the student's appeal submission.

Step 4: Final Resolution

If the CASI confirms the violation as originally charged, they will:

- Certify the Program Director's original penalty.
- Submit a written summary and finding to the Dean.
- The Dean will make the final determination as to whether any violation occurred and what penalty, if any, should be applied.

Records

Copies of the final decision (after appeal) will be sent to the Dean of Katz School and to the Office of the Registrar and may be documented on official transcript.

SOCIAL MEDIA USE

Students are required to adhere to the Social Media Policy established by the University and outlined in the YU Student Technology Resources Use Handbook**:**
https://www.yu.edu/sites/default/files/legacy//uploadedFiles/Offices_and_Services/Information_Technology/Home/Yeshiva%20University%20Student%20Technology%20Resources%20Use%20Handbook.pdf

Any student who posts content (on a personal or University website) that is deemed inappropriate and/or a violation of the School's Code of Ethics will be subject to disciplinary action.

GRIEVANCES

Grievance Procedure

Students have the right to file a grievance if they believe they have been treated unfairly, or if they believe the university, school or program policies have not been properly followed. The grievance process exists to uphold students' rights and ensure all concerns are addressed fairly, respectfully, and in a timely manner.

A student may file a grievance for reasons including, but not limited to:

- Unfair or inconsistent application of university, school or program policies
- Discriminatory treatment based on personal identity or demographic factors (e.g., race, ethnicity, gender identity, sexual orientation, disability, religion)
- Harassment or sexual harassment
- Retaliation or inappropriate treatment by faculty, staff, or other students
- Denial of access to learning opportunities (such as clinical placements, internships, or research experiences)
- Program dismissal or disciplinary action not carried out in accordance with established policies

- Situations that may or may not directly affect the student's academic record, grade, or standing

Note that the procedures set forth in the University's Non-Discrimination and Anti-Harassment Policy (Title IX Policy) will apply in connection with alleged violations under such policy.

If a student feels they have been treated unfairly they are encouraged to first attempt an informal resolution by communicating directly with the individual(s) involved or by consulting their program director.

If the issue cannot be resolved informally, a formal grievance may be submitted in writing to the program director, department chair, or the Office of the Dean. Complaints shall be reviewed by a Grievance Committee, who may request additional information from all parties as necessary to fully evaluate the complaint and investigate the facts upon which it is based. As soon as practicable, the Dean shall notify the grievant of the results of the investigation. The Grievance Committee shall be appointed by the dean. The Grievance Committee consists of two to four faculty members holding regular graduate faculty appointments in the student's program, excluding any faculty against whom the grievance has been filed. The director of student life serves as a non-deciding advisory chair.

Grievances will be reviewed confidentially and without bias. Retaliation against any student who raises a concern in good faith is strictly prohibited.

Health Requirements

COVID-19 Vaccination

Everyone is strongly encouraged to follow CDC guidelines for COVID-19 vaccination and to follow applicable guidance regarding masking.

Due to clinical placements, Katz School of Science and Health - Health Science Programs (e.g., Nursing, Occupational Therapy, Physician Assistant Studies, Speech-Language Pathology) are required to be fully vaccinated against COVID-19 and have at least one booster dose. Exemptions (medical or religious) will not be given.

Faculty and staff who are assigned to work in healthcare facilities or required by their job responsibilities to supervise and observe students at clinical sites, also must be fully vaccinated and have at least one booster dose.

Externships

In general, medical and religious exemptions to the University's vaccination requirements are not available for students in a University clinical training program due to the requirements of external clinical sites and other circumstances which would place an undue burden on the University to provide the accommodation. You should bear this in mind when applying to the program. The University will not refund any fees or other payments if you are unable to enroll or otherwise complete the program.

Immunization Forms

All Yeshiva University students taking 6 or more credits on campus must meet New York State immunizations requirements for Measles, Mumps, and Rubella and must complete a valid Meningococcal Response Form. The link to the form is available to incoming students by the Admissions office. Link: www.yu.edu/graduateimmunization

Immunization Form for Health Science Students

Health science students enrolled in the Doctorate of Occupational Therapy, Masters in Physician Assistant Studies, and Masters in Speech-Language Pathology must complete the Katz Health Science Health Form & Physical Exam Attestation. Link: www.yu.edu/healthclearanceimmunizationform

Onboarding for Health Science Students

The health science programs at the Katz School proudly partners with Exxat for student health compliance and management of clinical education. Prior to registration, all incoming health science students must first upload the documents outlined below into Exxat for review and approval. Upon approval of all documentations, students will be invited to register for their initial semester of study. The deadline to upload all documentation is August 1, for Fall cohorts and November 30th for Spring cohorts.

Required Documentation:

- COVID-19 Vaccination
- Flu (Influenza)
- Hepatitis B Surface Antibody/Titer
- Measles, Mumps, Rubella (MMR)
- Meningococcal Vaccine
- Tetanus, Diphtheria, and Pertussis (Tdap)
- Tuberculosis (TB)
- Katz Health Science Health Form & Physical Exam Attestation
  Link: www.yu.edu/healthclearanceimmunizationform
- CPR
- First Aid
- HIPAA Training
- Universal Precautions and Bloodborne Pathogens Training
- Working with Minors: "Protecting Children: Identifying and Reporting Sexual Misconduct"
- Health Insurance Card (front and back)
- Driver's License / Passport / Non-Driver's License/State ID
- Completion of Background Check

STUDENT RESOURCES

Academic Programs

Katz School Academic Programs Team helps students navigate where to go and whom to talk to. Students can email katz@yu.edu to discuss.

Academic Advisement

Every semester, students are expected to meet with an assigned faculty adviser or Program Director to discuss their progress in the program, plan future course work, review research activities, and plan what comes next after graduation. These advisers are the students' academic navigators, keeping students on course to achieve their personal goals. Students should contact their Program Director for more details.

Learning Management System

Canvas by Instructure is Yeshiva University's Learning Management System, and all Katz School students (both in online and on- campus programs) have access to Canvas. Canvas provides 24/7 support to give students the best experience possible when learning online. Students registered for online courses will be invited to participate in a self-paced, online orientation covering the basics of what they need to know about going to school online.

Career Center

Shevet Glaubach Center for Career Strategy and Professional Development offers students a range of programs and resources, from personalized counseling and career planning to the latest professional search technologies. The Shevet Glaubach Center for Career Strategy and Professional Development also hosts on- campus recruiting events, career fairs, and information sessions, partnering with employers, alumni, and community supporters to connect students

with professional opportunities. In addition, YU faculty offer career mentoring, helping students to identify career options and opportunities for further study.

Counseling Center

The Counseling Center consults with students on a confidential basis, free of charge. Their staff of qualified and caring professionals provide a calm and objective listening ear and can help students address any issues of concern. To learn more, visit www.yu.edu/student-life/counseling.

Disability Services

The Office of Disability Services collaborates with students, faculty and staff to provide reasonable accommodations and services to students who self-identify as having a disability. The Office's goal is to provide access to all campus programs and activities, thereby empowering students with disabilities to actualize their full academic and personal potential. Please visit the following website for more information about Disability Services, its documentation guidelines and contact information: https://www.yu.edu/student-life/resources-and-services/disability-services/students.

English for Graduate School and Work

To assist non-native English speakers, Katz School offers specialized courses designed to help students prepare for master's and doctoral programs in a U.S. university setting. Students can refine their academic and professional language skills, develop proficiency in managing graduate level course assignments and professional communication skills, and become familiar with the conventions and expectations of graduate school in the United States. Services include individualized graduate advising, specifically designed graduate English courses, writing development, and courses in English for career and work settings. Students interested in the program should speak with their Program Directors.

Graduate Assistantships

YU's on-campus, competitive graduate employment program helps you bridge the gap between academia and the professional world. Students who participate in this program have the opportunity to work with YU faculty, researchers, and administrators to gain invaluable experience that will enhance their professional profiles. For more information, contact katzgrad@yu.edu.

Health Services

All students taking at least 6 credits on campus must meet New York State immunizations requirements for Measles, Mumps, and Rubella and must complete a valid Meningococcal Response. The link to the form is available to incoming students by the Admissions office. Link: www.yu.edu/graduateimmunization.

All Yeshiva University students who are taking at least 1 credit on campus are required to have health insurance. Students may join a health insurance plan through the University, or they may waive this plan if they have their own health insurance. For more information on Health Insurance requirements, contact katzstudentservices@yu.edu.

Housing and the Transition to New York

Katz Student Services provides a list of resources to help domestic and international students find affordable housing options around New York. Whether students are coming from the tristate area, a different part of the US, or even another country, we know the transition to New York City requires planning. Our staff is here to facilitate from the time students apply to the time students move.

Library Services

Yeshiva University's libraries offer a wealth of information and support for advanced learning, research, and scholarly inquiry in an environment dedicated to the open exchange of information. While their primary responsibility lies with

the students and faculty of Yeshiva University, the libraries also engage in scholarly, cultural, and artistic interactions with broader communities. Students at any Yeshiva University campus have full access to the entire YU Libraries system. Learn more at www.yu.edu/libraries.

New Student Orientation

Every Fall, Student Services host a new Graduate Student Orientation prior to the start of classes. Orientation is structured to help students find their way around campus, finish up registration and paperwork, access services, and meet with faculty. In addition, students will be invited to attend meetups where they can connect with new classmates and current graduate students in many different departments.

New York City Experience

Yeshiva University is located in the heart of New York City. To help students explore the cultural and educational opportunities in the city, Katz School Student Services Office sponsors tickets to NYC events and venues for students. Past events include New York Philharmonic Ensembles, Harlem Globetrotters, The Phantom of the Opera, Madame Butterfly, and the New York Mets.

Office of International Students and Scholars

International students and exchange visitors are an important part of Yeshiva University's vibrant community. If enrolled in a STEM specific degree program, international students may qualify for extended Optional Practical Training after graduation.

The Office of International Student and Scholar Services (OISS) provides international students and scholars with immigration support and assistance with cultural adjustment, to help you achieve your educational goals. The OISS also acts as a liaison with the U.S. Department of Homeland Security (DHS) to ensure University-wide legal compliance with government immigration regulations and reporting requirements. International students are encouraged to visit the following website for support with their immigration status as a student at Yeshiva University: https://www.yu.edu/international-students

Office of Student Finance

To be considered for financial aid each student must complete a financial aid application.

- For U.S. citizens and Eligible Non-Citizens, please submit the Free Application for Federal Student Aid FAFSA.
- For all others, please file our International Financial Aid Application.

The priority deadline for incoming students is February 1 and for continuing students is April 15.

Refer to the following websites for more information about program cost and payment options:

- Tuition and Fees: https://www.yu.edu/katz/graduate/admissions/tuition-fees
- Payment Options for Graduate Students: https://www.yu.edu/osf/graduate-schools/grad-payment

OneCard

Students' YU ID card is part of the OneCard system, which allows students access to campus buildings, free shuttles, Library accounts, Dining Services, and printing accounts. Students can view account balances at www.onecard.yu.edu. (Sign in with your YUAD username and password; if you don't know your YUAD username and password, visit www.yu.edu/findid.) Students can also download the OneCard app for access to their YU ID card anywhere; follow the instructions at https://www.yu.edu/yucard/tips. For assistance with the YU ID card, email yucardsupport@yu.edu.

Parking for Students and Alumni

Students and alumni are eligible for parking at our uptown Wilf Campus. To apply for parking, please fill out and submit the applicable student parking or alumni parking application. Students should also notify parking@yu.edu regarding any adjustments to their parking account, such as vehicle or scheduling changes.

Research Opportunities

Full-time master's students may be awarded research assistantships. These awards are administered by the faculty of departments and specific programs. Assistantships are a type of financial support for graduate students who engage in research activities that further the University's mission and contribute to scientific literature, professional practice, and the graduate student's own education. Assistantships can be in the form of stipends, scholarships and fellowships, and regular on-campus employment. Students must remain in good academic standing in order participate in an assistantship.

Scholarships

Dean's Scholarships, Merit Awards, and external funding are awarded to a number of students every year. If applicable, Yeshiva University will also work with your employer's tuition reimbursement policies (within reasonable limits). For students coming from outside the US, the University can accommodate scholarships awards from your home country. If you need further financial support, financing options, including federal student loans and private loans, are available for qualified candidates. Contact the Graduate Admissions Office at katzgrad@yu.edu for more information.

Shuttle Transportation

The Office of Safety and Security provides free intercampus shuttle service in the evenings between the Beren and Wilf campuses and free local shuttle service to campus buildings, local transit hubs, and other approved stops. To access the intercampus shuttle, students need to open an account and sign up at www.yushuttles.com. To view the schedules (for both the local and intercampus shuttles), visit https://www.yu.edu/safety- security/transportation/shuttles.

Student Organizations and Clubs

Graduate students have the opportunity to join clubs based on their interests. Clubs run events periodically throughout the year. You may attend a Chinese New Year celebration sponsored by the Yeshiva University Chinese Association of Students and Scholars (YUCASS) or a conference with our chapter of the National Student Speech- Language Hearing Association (NSSLHA), among many other opportunities. If 12 or more students wish to form a club or student organization, they can apply to the Office of the Dean for formal recognition.

KATZ SCHOOL OF SCIENCE AND HEALTH
PROGRAM DESCRIPTIONS

MS in Artificial Intelligence

In this interdisciplinary master's degree, you will design and build cutting-edge AI technologies for a variety of applications like finance, biotech, cybersecurity, AdTech and law. Working with top researchers and accomplished industry experts, you'll bridge AI and machine-learning models, such as supervised and unsupervised learning, deep learning and neural networks and reinforcement learning, with engineering best practices including problem framing, requirements gathering, UI/UX and software development. In addition, you'll gain hands-on experience with structured and unstructured data using the latest tools like Python, R, Google ML Kit, SQL/NoSQL, and TensorFlow. And you'll be doing all of this in the heart of New York City—one of three global epicenters of the artificial intelligence industry. Get your M.S. in artificial intelligence from Yeshiva University, a U.S. News & World Report top-ranked university in New York City.

Artificial intelligence promises to deliver some of the most significant and disruptive innovations of this century. Self-driving cars, robotic assistants and automated disease diagnosis are all products of an emerging AI revolution that will reshape how we live and work. And with demand for talented engineers more than doubling in the last few years, there are limitless opportunities for professionals who want to work on the cutting-edge of AI research and development.

As a graduate of Yeshiva University's master's in artificial intelligence, you'll be prepared for a variety of artificial intelligence and machine learning jobs in research and development groups, product design labs and innovative startups.

Program Director

- Dr. Honggang Wang

Curriculum and Degree Requirements

In Yeshiva University's 36-credit MS in Artificial Intelligence you'll learn by doing, using advanced techniques in AI and machine learning on industry sectors as varied as healthcare, biotech, finance, social media, marketing, cybersecurity and more. In class and in the studio, you'll build AI applications, experiment with tools, and work with faculty on important research. As part of the coursework, you'll complete an industry-oriented final project, and you'll be encouraged to gain hands-on experience by working in real companies through internships and independent study.

Sample Course Sequence

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5
			AI Capstone	
Computational Statistics and Probability (3 credits) Numerical Methods (3 credits) Data Acquisition and Management (3 credits)	Predictive Methods (3 credits) Machine Learning (3 credits) Artificial Intelligence (3 credits)	Neural Networks and Deep Learning (3 credits)	Bayesian Methods (3 credits) Natural Language Processing (3 credits) AI Product Studio (3 credits)	Reinforcement Learning (3 credits)

Course Descriptions

AIM 5000 Artificial Intelligence

Prerequisites: Data Acquisition and Management; Computational Statistics and Probability

Artificial Intelligence (AI) is an interdisciplinary field, integrating knowledge and methods from computer science, mathematics, philosophy, psychology, economics, neuroscience, linguistics, and biology. Intelligent agents mimic cognitive functions to implement intelligent behaviors such as perception, reasoning, communication, and acting in symbolic and computational models. AI is used in a wide range of narrow applications, from medical diagnosis to speech recognition to bot control.

The autonomous single, multiple, and adversarial agents that students build in this course will support fully observable and partially observable decisions in both deterministic and stochastic environments. Topics covered include search, constraint satisfaction, Markov decision processes, planning, knowledge representation, reasoning under uncertainty, graphical models, and reinforcement learning. The techniques and technologies mastered here will provide the foundational knowledge for the ongoing study and application of AI in other applications across practice areas.

AIM 5002 Computational Statistics and Probability

Arguably, most of data science is statistical learning, which requires strong foundational knowledge in probability and statistics. And applying computational methods such as direct simulation, shuffling, bootstrapping, and cross validation to statistical problems is often more intuitive, and intuitive and can provide solutions where analytical methods would prove computationally intractable. This course introduces students to the statistical analysis of data using modern computational methods and software. Probability, descriptive statistics, inferential statistics and computation methods such as simulations sample distributions, shuffling, bootstrapping, and cross-validation will be covered.

AIM 5001 Data Acquisition and Management

Data Acquisition and Management focuses on the data structures, data design patterns, algorithms, methods, and best practices for the pre-modeling phases of data science workflows, including problem formulation, gather, analyze, explore, model, and communicate, analytics programming focuses on the gather, analyze, and explore workflow steps. This comprises the “data wrangling” work which is where most data scientists spend the majority of their time. Because data science is iterative, this preparatory work informs the modeling phase. Often, the creation and validation of new models requires going back for additional data, different data transformations, and exploration of data distributions. In short, every effective data scientist needs to master analytics programming. Course topics include reading from or writing to databases, text files, and the web; shaping data into “tidy” data frames, exploratory data analysis, data imputations, feature engineering, and feature scaling.

AIM 5005 Machine Learning

Prerequisites: Data Acquisition and Management; Computational Statistics and Probability

In classical programming, answers are obtained from rules and data. In machine learning, rules are obtained from data and answers. The widespread availability and sharing of data, and improvements in computing capacity, processing methods, and algorithms have given machine learning the power to deliver game-changing systems and technologies to organizations that compete on predictive, prescriptive, and/or autonomous analytics. In this course, we’ll look at methods for using, tuning, and comparing machine learning algorithms, based on measures of performance, accuracy, and explainability. We’ll also look at recent advances and trends in automated machine learning.

AIM 5007 Neural Networks and Deep Learning

Prerequisites: Machine Learning

Data scientists have been able to leverage better algorithms on faster hardware optimized with graphical processing units to deliver improved performance and accuracy in whole classes of applications that had been previously commercially unviable. The biggest beneficiaries are applications that require unstructured data, such as audio and or video processing. Deep neural networks have also provided gains for other complex applications, from recommendation systems to natural language processing. This course builds on the concepts in machine learning to train multi-layered neural networks.

AIM 5003 Numerical Methods
Algorithms in machine learning and neural networks are built upon a strong foundation of linear algebra. For example, modern recommendation systems may have sparse matrices with millions of users and millions of items; matrix factorization methods make the underlying calculations tractable say this course builds a foundation of linear algebra concepts such as matrices, determinants, vectors and eigen values. Then it deepens it into data science applications around network analysis and logistic algorithms. In addition, some multi-variate calculus and graph theory topics are covered.

AIM 5004 Predictive Models
Prerequisites: Data Acquisition and Management; Computational Statistics and Probability
Predictive modeling answers the question, "What will happen next?" Linear regression and logistic regression are foundational predictive modeling methods, used to predict continuous and categorical output respectively. The main topics covered in this course include simple and multiple linear regression, variable selection and shrinkage methods, binary logistic regression, count regression, weighted least squares, robust regression, generalized least squares, multinomial logistic regression, generalized linear models, panel regression, and nonparametric regression.

AIM 5008 Capstone for Artificial Intelligence and Machine Learning
The Capstone integrates prior coursework, research, colloquia, and professional experience, and provides the opportunity to synthesize theory with practice in an applied project, thesis, approved internship, or equivalent activity. Examples include developing an AI application or methodology, publishing a research paper at a peer reviewed conference, or creating a startup company through YU's Innovation lab—though students may propose other related projects based on their interests. The Capstone will include four components: a brief proposal and project schedule; the main deliverable (e.g. thesis, conference paper, working system with analysis/code/data); and a final presentation to the student and faculty body. Faculty will provide students with mentorship and feedback at each stage of the work.

AIM 5013 Advanced Data Engineering
Prerequisites: Data Acquisition and Management
As both the volume and the velocity of data increase exponentially, problems in both commerce and research become increasingly reliant on environments with distributed data storage and data processing capabilities. This requires rethinking how our entire approach to distributed environments. This course provides students with the concepts, data structures, and algorithms needed to implement data science applications in distributed computing environments. In this course, we will implement and apply distributed algorithms, data frames, and streaming. You will also learn how to choose appropriate distributed algorithms based on the characteristics of the problem and the system.

AIM 5009 Bayesian Methods
Prerequisites: Data Acquisition and Management; Computational Statistics and Probability
Bayesian inference provides powerful tools to model random variables. While Bayesian methods often yield the most accurate theoretical results, historically analytical complexity made it challenging to apply Bayesian methods against less trivial problems. Now, the confluence of more powerful computing resources and improved computational algorithms make Bayesian methods the best choice for tackling some of the most complex data science problems. Bayesian analysis is increasingly important in academic research, and research and is the preferred standard statistical analysis tool in data science practice. In this course, we'll build from Bayes' probability foundations to first applying Bayesian methods to infer binomial probabilities, then hierarchical models, and finally generalized linear models. We'll provide comparisons between frequentist approaches and Bayesian approaches. We'll build basic algorithms from scratch, as well as using high-performance Markov Chain Monte Carlo (MCMC) methods.

AIM 5012 Data Visualization
Data scientists depend on data visualizations for their own exploratory analysis to support their modeling decisions--the mind can process visual information must faster than numbers. Data visualization is also important to inform—and often to persuade—other people about what can be inferred from the data. These explanatory visualizations

often require higher production values, interactivity, and guiding text. In this course, students apply the concepts, methods, and best practices of data visualization to create reproducible, code-based exploratory and explanatory data visualizations.

AIM 5011 Natural Language Processing
Prerequisites: Machine Learning; Neural Networks and Deep Learning
Natural Language Processing lives at the intersection of machine learning, artificial intelligence, and linguistics. It is the key to unlocking vast amounts of human-generated, unstructured data. The increased availability of corpuses of text data, the wide availability of cheap distributed systems, improvements in neural network algorithms, and increased access to graphical processing units (GPUs) have improved the performance and accuracy of entire families of once computationally intractable problems, making these commercially feasible.

This course explores a series of text and voice processing use cases, including sentiment analysis and topic modeling. It is the key to unlocking vast amounts of human-generated, unstructured data. Along the way, students gain experience working with supervised and unsupervised methods using both machine learning algorithms and deep neural networks.

AIM 5010 AI Product Studio
What is needed to convert a promising idea or research into a viable product or service? Bringing successful products to market is an experiential discipline that requires hands-on practice working through iterative workflow of a customer-driven product development lifecycle. In this course, students work with mentors to design products, develop customers, and create product development roadmaps. Students create and communicate hypotheses around customers, cost and revenue streams, activities, and value propositions. Agile project management, data driven product design and customer feedback, and technical constraint identification are all covered.

AIM 5012 Special Topics in Artificial Intelligence and Machine Learning
This course provides the opportunity to take on emerging theory, phenomena, and technologies in the field of artificial intelligence, machine learning, data science, and big data generally. This will be an advanced class, whether seminar style or project based.

AIM 5999 Independent Study in Artificial Intelligence and Machine Learning
The course provides flexibility to learn more about a topic of interest outside of the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives.

Admission and Financial Aid

The interdisciplinary nature of AI demands expertise from many different fields. While the program is designed for students with undergraduate majors in computer science, engineering, mathematics, physics, information systems, and other science and quantitative majors, the faculty also feel strongly about including smart, hard-working people from social science, economics, medicine, finance and more.

Admissions criteria:
Bachelor’s degree with a strong mathematical and programming background including at least two university courses in a high-level programming language such as Java/C++/Python; multivariate calculus, linear algebra, and mathematical probability/statistics all with a grade of B+ or better. Prerequisites must have been completed in the last three years. Equivalent professional experience is acceptable.
Though not required, strong quantitative GRE scores can be helpful in your application.
TOEFL score demonstrating strong communication skills, for students whose first language is not English or who have not received their degree from an English-speaking university

Application Process
Submit the following items:

- Online application
- Official transcripts from all colleges or universities attended
- Official GRE scores
- Résumé
- Personal statement describing 1.) your professional goals, 2.) reason for choosing Katz School of Science and Health master’s in artificial intelligence, and 3.) readiness for success in this program
- Two academic or professional letters of recommendation that can speak to your technical and quantitative abilities
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)
- NACES course-by-course evaluation (for degrees completed outside of the US and English-speaking
- Katz School of Science and Health offers a fully online, 11-week intensive program for applicants with low intermediate to upper-intermediate English reading, speaking and writing skills.

MS in Biotechnology Management and Entrepreneurship

The MS in Biotechnology Management and Entrepreneurship at the Yeshiva University Katz School provides the mission-critical scientific, technical, and business knowledge needed to launch, manage, scale and commercialize biotechnology products and services. The degree is modeled on Professional Science Master's degrees—what The New York Times called "the science MBA."

Program Director

- Professor Joseph Panzarella (interim)

Curriculum and Degree Requirements

The flexible 36-credit program in Biotechnology Management and Entrepreneurship enables students to design a path best suited for their lives, choosing part-time or full-time study on campus. All students will complete an industry-oriented capstone project and are encouraged to use part of their electives to work in real companies to gain hands-on experience through internships and independent study. Katz students are eligible to receive course credit for internships.

Sample Course Sequence

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5
Foundations of Biotechnology (3 credits) Biotechnology Management (3 credits) Elective (3 credits)	Pharmacology Product Development (3 credits) Applications in Biotechnology (3 credits) Intellectual Property, Regulation and Compliance (3 credits)	Elective (3 credits)	Elective (3 credits) Elective (3 credits) Elective (3 credits)	Elective (3 credits) Capstone (3 credits)

*Elective Courses:

- Applied Biologics
- Survey of Life Sciences
- Biostatistics and Informatics
- Clinical Trials and Research Management
- Finance for Startups and Entrepreneurial Ventures
- Marketing Management
- Project Management
- Technology Entrepreneurship
- Internship
- Special Topics
- Independent Study

Course Descriptions

BTM 5100 Foundations of Biotechnology
Provides a top-level understanding of the interdisciplinary scientific foundations of biotechnology. Topics include the molecular foundations of biotechnology, molecular microbiology, receptor pharmacology, drug development processes, biotech process development and scale-up, drug approval and regulatory affairs, genomics, microarray analysis, proteomics, computational biology, molecular modeling, analytical biotechnology, bioterrorism, and biotechnology.

BTM 5200 Biotechnology Management
Provides an overview of the activities and knowledge required to lead and administer biotechnology and pharmaceutical companies. Topics include health technology assessment and cost-effectiveness analysis; personalized medicine, pharmacogenomics, and companion diagnostics; drug pricing and reimbursement; governmental payers; patents and intellectual property; and information in health care.

BTM 5300 Pharmacology Product Development and Commercialization
Provide students with a working knowledge of the policies, processes, and procedures for drug- discovery, development, and commercialization. Topics cover drug development from bench to bedside, including portfolio and pipeline management; and health economics research.

BTM 5400 Applications of Biotechnology
Provides an overview of the many different applications of biotechnology in medicine and the fundamental science underlying these products and techniques. Topics include DNA sequencing; immunology; microscopy; culture and differential staining; and pharmacogenetics, among others. Intellectual Property, Regulation and Compliance for Biotechnology provides an introduction to the legal system, including contract and intellectual property law; an understanding of the key regulatory agencies and areas of compliance impacting biotechnology activities; and a strong foundation in the ethical issues concerning the development and commercialization of biotechnology products. Topics include criminal and civil liability; laws that govern the use, testing, development and licensing of biotechnology; regulatory agencies; quality assurance; and ethics of research, among others.

BTM 6500 Capstone in Biotechnology Management and Entrepreneurship
In this course, students will integrate the skills developed in previous classes into a comprehensive body of knowledge, and they will provide tangible evidence of competencies in Biotechnology Management and Entrepreneurship. The capstone will include four components: 1) a brief proposal and project schedule; 2) the main project deliverable; 3) a final presentation; and 4) a reflection on the student's knowledge of biotechnology operations, commercialization and product development.

BTM 5000 Survey of Life Sciences
This course is a survey of biochemistry, cellular and molecular biology. Topics include: the structure of cells; proteins, carbohydrates, lipids, and nucleic acids; DNA, genetics and gene expression; cell growth and cancer; metabolism-energy generation and their implications for disease and drugs.

BTM 5600 Applied Biologics
This course is composed of multiple modules, each focused on a particular technology such as DNA sequencing, proteomics, metabolomics, imaging, synthetic biology, immunology, gene editing etc.).

BTM 6000 Biostatistics and Informatics
Provides students with the fundamental principles of experimental design, statistical and exploratory data analysis and visualization, emphasizing research related to human health and clinical settings. Statistical topics include descriptive statistics, hypothesis testing, analysis of variance, correlation, regression, chi-square test, and nonparametric methods. Study design topics include population selection, inclusion/exclusion criteria, strengths and limitations of the respective study designs, and interpretation of study results.

BTM 6100 Clinical Trials and Research Management
Provides an interdisciplinary, state-of-the-art scientific introduction of clinical trials and research management to biotechnology to students. Topics include: designing and managing clinical trials, trials documentation, pediatric trials, risk management, IRB and FDA guidelines for clinical trials, NIH and NSF grants management, clinical trials data management and protocols.

BME 5800 Technology Entrepreneurship and Venture Creation
Provides an introduction to the critical factors of success for entrepreneurial ventures and examines intrapreneurship within existing companies. Topics include: innovation models, diffusion of innovations; growth-share matrix, identifying high value opportunities; developing a business plan; determining pricing and implementing an integrated marketing strategy; entrepreneurial leadership, innovation ecosystems and networks of innovation; hiring talent and managing incentives; financial management and acquisition of capital.

BTM 5700 Finance for Startups and Entrepreneurial Venture
Provides students with a foundation for making financial decisions in startups and entrepreneurial ventures. Topics include: basic accounting principles; financial statement analysis (income statements, balance sheets, and statement of cash flows); strategic planning, capital budgeting and forecasting; expectations of investors, methods of valuation, dilutive and non-dilutive sources of funding; developing investor pitches, negotiating term sheets; and evaluating exit strategies.

MAN 5580 Project Management
Most data analysis and visualization work are project-based, and successful data analysts are effective at managing projects and collaborating as members of project teams. This course teaches project management using several tools from the leading methodologies for managing software projects. The most effective project managers will combine methods to create a “right-sized” methodology appropriate to the organizational culture and project team members’ background and experience.

MAR 5815 Marketing Management
The purpose of this course is to provide Marketing students with a solid foundation in modern marketing from a strategic, general management perspective. The concepts and techniques presented in the class address issues such as customer insights, competitive analysis, market segmentation, positioning strategy, and marketing decisions that managers make to support an effective marketing strategy. To reflect the scope of today’s business world, the course will approach marketing across a variety of contexts, incorporating diverse perspectives such as: domestic and international, products and services, and conventional and unconventional communications methods. Through class projects, hands-on group exercises, case studies, and class discussions, we will explore marketing strategy and its implementation through what is traditionally called the "marketing mix." As we progress, it will become apparent that each of these decisions affects the others and that they must all be framed as part of an integrated marketing strategy.

BTM 6450 Internship in Biotechnology Management and Entrepreneurship
This course consists of an off-campus internship experience supervised by a staff person at the internship site and overseen by a faculty advisor. The internship site must be approved by the program director, and the overall duration of student work must be no less than 150 hours (based on a 3-credit course). At the start of the internship, the student and faculty advisor will jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students will be required to submit weekly reflections, and at the end of the internship, students write a final paper that represents the culmination of the work performed.

BTM 6900 Special Topics in Biotechnology Management and Entrepreneurship
This course provides the opportunity to offer boutique short-term courses on emerging phenomena, policies, processes, technologies, and techniques in data analysis and visualization. The expectation is that this will be an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

BTM 6999 Independent Study in Biotechnology Management and Entrepreneurship
This independent study course provides the student with the flexibility to learn more about a topic of interest outside of the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives. Course credit is determined in advance of the course, by the instructor with the approval of the program director.

Admissions Requirements

Candidates must possess a bachelor's degree from an accredited college or university and complete a one-on-one interview with the faculty. The interview is a chance to get to know the faculty and ask detailed questions about the field and program. Program prerequisites include a minimum of any two biology courses with a grade of B or better.

Candidates must submit the following items:

- Online application
- Transcripts from all colleges or universities attended
- Personal statement detailing your career goals and interest in the program
- Two academic or professional recommendation letters
- Application fee
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)

MS in Computer Science

Program Director

- Honggang Wang, Ph.D. - Professor and Department Chair, Graduate Computer Science and Engineering

Curriculum and Degree Requirements

45-credit M.S. in Computer Science

The 45-credit M.S. in Computer Science is designed for students who have an undergraduate degree in a major other than computer science (as more fully described below) who want to transition into an impactful career in computer science and related fields. The program begins with a five-course introductory sequence followed by advanced computer science coursework and electives. Students also have an accelerated option to complete the degree in 30-credits. See admissions below for more information.

Students master the fundamentals of computing theory, systems and applications and the advanced knowledge to work on computer systems, software design and application development. They learn to take a structured approach to designing and developing computer systems and solutions, including mobile applications, cloud computing, augmented reality, and intelligent applications. They work with traditional computing theory and algorithms, as well as algorithms that benefit from vast amounts of data. In addition, they develop the skills to lead new projects and technologies. The M.S. in Computer Science is intended to help open doors to competitive jobs in R&D and fast-growing specializations like AI, cybersecurity, networking, and software development.

Curriculum Structure: Computer Science Core (15 cr.); Advanced (9 cr.); Electives (18 cr.); Capstone (3 cr.)

Sample Course Sequence (Full Time)

Semester 1	Semester 2	Semester 3	Semester 4
COM 5000 Introduction to Programming* (3 credits)	COM 5003 Systems Analysis and Design (3 credits) *	COM 6000 Capstone in Computer Science I (1.5 credits)	COM 6001 Capstone in Computer Science II (1.5 credits)
COM 5001 Computer Science Math I* (3 credits)	COM 5100 Advanced Algorithms (3 credits)	COM 5110 Operating Systems (3 credits) - elective	Elective
COM 5002 Algorithms and Data Structures* (3 credits)	COM 5101 Theoretical Computer Science and its Applications (3 credits)	COM 5222 Fundamentals of Software Engineering (3 credits) - elective	Elective
COM 5010 Computer Systems (3 credits) *	COM 5102 Emerging Paradigms in Programming (3 credits)	COM 5441 Hardware Security (3 credits) - elective	Elective
Term Credit Total: 12	12	10.5	10.5

Sample Course Sequence (Part Time)

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7	Semester 8
COM 5000 Introduction to Programming * (3 credits)	COM 5002 Algorithms and Data Structures (3 credits)*	COM 5003 Systems Analysis and Design* (3 credits)	COM 5101 Theoretical Computer Science and its Applications (3 credits)	COM 5110 Operating Systems (3 credits) - elective	COM 5441 Hardware Security (3 credits) - elective	COM 6000 Capstone in Computer Science I (1.5 credits)	COM 6001 Capstone in Computer Science II (1.5 credits)

COM 5001 Computer Science Math I (3 credits)*	COM 5010 Computer Systems (3 credits)*	COM 5100 Advanced Algorithms (3 credits)	COM 5102 Emerging Paradigms in Programming (3 credits)	COM 5222 Fundamentals of Software Engineering (3 credits) - elective	Elective (3 credits)	Elective (3 credits)	
						Elective (3 credits)	
Term Credit Total: 6	6	6	6	6	6	7.5	1.5

*Students taking accelerated option do not need to take these courses.

Electives
At least 12 elective credits must be from COM or AIM; additional elective courses may be selected from any graduate department at YU or elsewhere (with the permission of the program director). Offerings vary each semester. Therefore, some choices will not be available for a particular cohort. Internship can be taken as an elective beginning in the summer semester. All courses are three credits unless otherwise noted.

AIM 5001 Data Acquisition & Management
AIM 5002 Computational Statistics and Probability
AIM 5005 Machine Learning
AIM 5006 Artificial Intelligence
AIM 5007 Neural Network and Deep Learning
COM 5014 Special Topics
COM 5120 Human-Computer Interaction
COM 5210 Mobile Computing and Apps Development
COM 5323 Computer Graphics
COM 5421 DevOps
COM 5440 Software System Security
COM 5500 Internship
COM 5999 Independent
MAN 5580 Project Management

Course Descriptions

AIM 5001 Data Acquisition and Management
Data Acquisition and Management focuses on the data structures, data design patterns, algorithms, methods, and best practices for the pre-modeling phases of data science workflows, including problem formulation, gather, analyze, explore, model, and communicate. This comprises the “data wrangling” work which is where most data scientists spend most of their time. Because data science is iterative, this preparatory work informs the modeling phase. Often, the creation and validation of new models requires going back for additional data, different data transformations, and exploration of data distributions. In short, every effective data scientist should master analytics programming. Course topics include basics of Python programming and required tools for data management and reading from or writing to databases, text files, and the web; shaping data into “tidy” data frames, exploratory data analysis, data imputations, feature engineering, and feature scaling.

AIM 5002 Computational Statistics and Probability
Arguably, most of data science is statistical learning, which requires strong foundational knowledge in probability and statistics. And applying computational methods such as direct simulation, shuffling, bootstrapping, and cross validation to statistical problems is often more intuitive and can provide solutions where analytical methods would prove computationally intractable. This course introduces students to the statistical analysis of data using modern computational methods and software. Probability, descriptive statistics, inferential statistics, and computation methods such as simulations sample distributions, shuffling, bootstrapping, and cross-validation will be covered.

AIM 5005 Machine Learning – *Prereqs: AIM 5002 and 5001 or COM 5000, 5001 and 5002*

In classical programming, answers are obtained from rules and data. In machine learning, rules are obtained from data and answers. The widespread availability and sharing of data, and improvements in computing capacity, processing methods, and algorithms have given machine learning the power to deliver game-changing systems and technologies to organizations that compete on predictive, prescriptive, and/or autonomous analytics. In this course, we'll look at methods for using, tuning, and comparing machine learning algorithms, based on measures of performance, accuracy, and explainability. We'll also look at recent advances and trends in automated machine learning.

AIM 5006 Artificial Intelligence – *Prereqs: AIM 5002 and 5001 or COM 5000, 5001 and 5002*
Artificial Intelligence (AI) is an interdisciplinary field, integrating knowledge and methods from computer science, mathematics, philosophy, psychology, economics, neuroscience, linguistics, and biology. Intelligent agents mimic cognitive functions to implement intelligent behaviors such as perception, reasoning, communication, and acting in symbolic and computational models. AI is used in a wide range of narrow applications, from medical diagnosis to speech recognition to bot control. The autonomous single, multiple, and adversarial agents that students build in this course will support fully observable and partially observable decisions in both deterministic and stochastic environments. Topics covered include search, constraint satisfaction, Markov decision processes, planning, knowledge representation, reasoning under uncertainty, graphical models, and reinforcement learning. The techniques and technologies mastered here will provide the foundational knowledge for the ongoing study and application of AI in other applications across practice areas.

AIM 5007 Neural Networks and Deep Learning – *Prereq: AIM 5005*
Data scientists have been able to leverage better algorithms on faster hardware optimized with graphical processing units to deliver improved performance and accuracy in whole classes of applications that had been previously commercially unviable. The biggest beneficiaries are applications that require unstructured data, such as audio and or video processing. Deep neural networks have also provided gains for other complex applications, from recommendation systems to natural language processing. This course builds on the concepts in machine learning to train multi-layered neural networks. Main topics covered in this course are generalization, convolutional neural network, recurrent neural network, long short-term memory, and autoencoder.

COM 5000 Introduction to Programming
Learning to write concise, effective, and well-documented computer programs is a prerequisite for any substantive study of computer science. This course introduces students to structured and object-oriented programming constructs, including data types, mathematical and logical operators, control flow constructs, basic data structures, functions, data input and output, objects, classes, methods, inheritance, and algorithmic problem solving. Students are expected to learn to effectively design, execute, and debug algorithms using an object-orientated approach.

COM 5001 Computer Science Math
Many concepts and theories in modern computer science are built on discrete mathematics, linear algebra, and calculus. This course introduces students to fundamental mathematics for computer science, including topics such as number theory, combinatorics, graph theory, differential, integral and vector calculus for functions of more than one variable as well as basics of linear algebra.

COM 5002 Algorithms and Data Structures
Most accomplished software designers recognize that a thorough knowledge of data structures and algorithmic analysis can significantly improve application design and performance. This course introduces students to a variety of data structures and algorithmic design paradigms. Students are expected to learn to assess the effectiveness of these structures and algorithms, considering factors such as computational complexity, storage space requirements, ease of use, and maintainability. They also design, develop, implement, and analyze a variety of software applications using data structures and algorithmic design paradigms.

COM 5003 Systems Analysis and Design - *Prereq: COM 5010*
Effective analysis and design of computing systems and applications requires a variety of business, technological, and methodological considerations. In this course, students explore analytical approaches to the definition of business problems, requirements gathering, process modeling, data modeling, system design, system testing/quality assurance, and system implementation using full system development life cycle. They also explore traditional and emerging project management and application design and development paradigms.

COM 5010 Computer Systems
Understanding the internal behavior of computing devices enables the design of more efficient and scalable software systems. This course introduces students to the fundamental principles and components of computer system architecture. Students are expected to learn to describe, compare, and contrast different computing architectures and gain a deeper understanding of the relationship between hardware and software. Topics include the evolution of computing systems, digital logic, processor design, instruction sets, x86, x64, ARM, and RISC-V architectures, embedded systems, processor virtualization, graphics processing units (GPU's), and smartphone architecture.

COM 5014 Special Topics in Computer Science
This course provides the opportunity to offer special interest courses on emerging theory, phenomena, and technologies in computer science, in areas such as systems, human-computer interaction, machine learning, and artificial intelligence. This will be an advanced class, whether seminar style or project based. Students are required to complete an appropriate project or other deliverable in line with the number of credits awarded for the course.

COM 5100 Advanced Algorithms - *Prereqs: COM 5000, COM 5002*
Designing efficient algorithms is one of the most important tools computers scientists use to solve difficult problems. This course covers techniques for designing efficient algorithms, as well as advanced topics such as self-adjusting search trees, network flows, linear programming, approximation algorithms, and randomization algorithms. Students apply these tools and techniques to real-world problems, such as airline scheduling, image segmentation, social networking, genomic sequencing, and survey design.

COM 5101 Theoretical Computer Science and its Applications - *Prereqs: COM 5001, COM 5002*
The course provides students with a comprehensive understanding of the mathematical aspects of computer science as well as their application. Throughout the course, students will learn the theoretical foundations of computer science and gain knowledge with various topics including algorithms, computational models, and the fundamental principles underlying computation.

COM 5102 Emerging Paradigms in Programming - *Prereq: COM 5000*
This advanced-level course explores innovative and cutting-edge programming concepts, languages, and methodologies. The course is designed for students who already possess a strong foundation in traditional programming paradigms and are eager to explore the latest trends and advancements in the field. Throughout the course, students will be exposed to various programming languages, frameworks, and tools to understand how they enable developers to tackle modern-day challenges effectively.

COM 5110 Operating Systems
An operating system (OS) is a resource manager that provides an environment for users and applications to cooperate and share computer system resources. Understanding how operating systems function allows engineers to develop more effective applications, better utilize system functionality, and improve performance. In this course, students are expected to learn how operating systems manage resources, including CPU, memory, and devices. The course also covers the objects and functions performed by operating systems, including process, thread, memory management, system calls, file system management, and interprocess communications.

COM 5120 Human-Computer Interaction
The rapid expansion of ubiquitous computing means that humans interact with computer technologies in all aspects of their lives. This presents numerous opportunities—and pitfalls—with regards to computer design. This course introduces students to the quantitative and qualitative study of Human Computer Interaction (HCI). We survey various approaches to studying HCI, including Interaction Design, Graphical Design, Educational Design, Human Robot Interaction, and Games. We also consider how the study of HCI influences the design of effective computer technologies.

COM 5210 Mobile Computing and Apps Development
Rapid developments in mobile technologies and systems—like low-cost and energy-efficient CPUs, new applications, increased internet speed, and advances in human-computer interfaces—have made mobile computing an indispensable part of human life. This course provides a broad introduction to the field of mobile computing and mobile application development. Topics include networking, operating systems, database, mobile security, and app development. Students also gain hands-on experience using mobile simulators and apps.

COM 5222 Fundamentals of Software Engineering - *Prereq: COM 5102*
The course provides students with a deep understanding of the principles, techniques, and processes involved in software engineering. The course covers the foundational concepts and methodologies necessary for the development of high-quality software systems. It emphasizes the systematic approach to software development and project management, focusing on the entire software lifecycle from requirements gathering to deployment and maintenance.

COM 5323 Computer Graphics
The course provides students with a comprehensive understanding of the fundamental principles and techniques used in computer graphics. It explores the creation, manipulation, and rendering of digital images and visual content using software and hardware technologies. Throughout the course, students are expected to learn the theoretical foundations of computer graphics and gain hands-on experience with various tools and software used in the field. The course covers both 2D and 3D graphics, enabling students to develop skills in both domains.

COM 5421 DevOps
The course is designed to provide participants with a comprehensive understanding of DevOps principles, practices, and tools. During this course, students will explore the fundamental concepts, methodologies, and technologies that drive the DevOps culture. They are expected learn how to bridge the gap between development and operations teams, enabling faster and more reliable software releases. The course will cover various aspects of the DevOps lifecycle, including continuous integration, continuous delivery, infrastructure automation, and monitoring. Through the course, the students are expected to have a solid understanding of DevOps concepts, tools, and practices, allowing them to contribute effectively to DevOps initiatives within their organizations.

COM 5440 Software System Security
The course provides students with a deep understanding of the principles, techniques, and processes involved in software system security. The course covers the measures and practices put in place to protect software applications and systems from potential threats and vulnerabilities. It emphasizes multiple layers of protection, each addressing different aspects of security, as software systems are often targeted by malicious actors seeking to exploit weaknesses and gain unauthorized access or control.

COM 5441 Hardware Security
The course provides students with a deep understanding of hardware security that focuses on protecting the physical components and integrated circuits of electronic devices from threats and attacks. This course provides a comprehensive overview of hardware security principles, techniques, and best practices to ensure the confidentiality, integrity, and availability of digital systems. Students will gain a deep understanding of hardware vulnerabilities, attacks, and mitigation strategies.

COM 5500 Internship
This course allows students to participate in an off-campus internship supervised by a staff person at the internship site and overseen by a faculty advisor. The internship site must be approved by the program director and the overall duration of student work must be no less than 150 hours (based on a 3-credit course). At the start of the internship, the student and faculty advisor will jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students will be required to submit weekly reflections, and at the end of the internship, students write a final paper that represents the culmination of the work.

COM 5999 Independent Study in Computer Science
The course provides the student with the flexibility to learn more about a topic of interest outside of the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives. Course credit is determined in advance by the instructor with the approval of the program director.

COM 6000 Capstone in Computer Science 1
The Capstone in Computer Science integrates students' prior coursework, research, colloquia, and professional experiences. It offers a unique opportunity to synthesize computer science theory with real-world practice through

an applied project, thesis, approved internship, or equivalent activity. Students will work with their supervising faculty to identify deliverables for both Part 1 and Part 2 of the Capstone.

COM 6001 Capstone in Computer Science 2
The Capstone in Computer Science integrates students' prior coursework, research, colloquia, and professional experiences. It offers a unique opportunity to synthesize computer science theory with real-world practice through an applied project, thesis, approved internship, or equivalent activity. Students will work with their supervising faculty to identify deliverables for both Part 1 and Part 2 of the Capstone.

MAN 5580 Project Management
Big-Tech development and management is project-based, and successful researchers and technologists are effective at managing projects and collaborating in cross-functional, geographically distributed project teams. This course teaches the methodologies and tools for large-sized (PMI) and small-scale (Agile) projects as well as how to adapt management methods to organizational culture and project team members' background and experience.

Admissions Requirements

45-credit M.S. in Computer Science

Knowledge Requirements
The M.S. in Computer Science is for students from a range of backgrounds – an undergraduate degree in computer science is not required. Candidates must possess a bachelor's degree in any STEM-related major from an accredited college or university, with a minimum GPA of 3.3 and the following prerequisite coursework:

- Algebra
- Statistics
- Calculus and programming recommended

Prerequisites must have been completed in the last three years, with a grade of B+ or better. Students from other majors like business, psychology and finance may be considered on a case-by-case basis.

Application Requirements
Applicants must submit the following:

- Online application
- Application fee
- Transcripts from all colleges and universities attended
- Statement of purpose detailing your career goals and interest in the program
- Resume/CV
- English Proficiency – All non-native English-speaking applicants must demonstrate English language proficiency before enrollment. Please refer to the admissions website for details.

Accelerated Program Option
Students with an undergraduate degree in in Computer Science can take an accelerated 30-credit option of the MS in Computer Science.

MS in Cybersecurity

Yeshiva University's MS in Cybersecurity is a STEM-approved 30-credit master's degree, focused on the technology and management competencies for planning, implementing, upgrading, monitoring, and auditing cybersecurity protocols and procedures. The degree is aligned with industry certifications: CCP, CISSP, CISM, and ISACA-CRISC, and teaches you state-of-the-art technologies and practices. You'll get hands-on experience with threat mitigation, detection, and defense. You will have the opportunity to gain practical experience through internships, CPT and STEM OPT.

Program Director

- Sivan Tehila, M.S.

Curriculum and Degree Requirements

Yeshiva University's MS in Cybersecurity is a STEM-approved 30-credit master's degree, focused on the technology and management competencies for planning, implementing, upgrading, monitoring, and auditing cybersecurity protocols and procedures. The degree is aligned with industry certifications: CISSP, CISM, and ISACA-CRISC, and teaches you state-of-the-art technologies and practices. You'll get hands-on experience with threat mitigation, detection, and defense.

Sample Course Sequence (subject to change)

Semester 1	Semester 2	Semester 3	Semester 4
Cybersecurity Foundations	Architecture of Secure Operating Systems, Applications and Devices	Leading Technology Organizations	Internship
Risk Management and Cybersecurity	Cybersecurity Audit, Assessment and Training (Cloud Security)	Elective	
Network, Data and Communications Security	Discovery, Digital Evidence and Computer Forensics	Capstone	

***Elective Courses:**

- Project Management, 3 Credits
- Psychology of Threat Actors and Their Motives
- Business Continuity Planning and Crisis Communication
- Cybersecurity and Cyberterrorism, 3 Credits
- Special Topics (varies by semester), 1-3 Credits
- Internship, 1-2 Credits
- Independent Study, 1-3 Credits

Course Descriptions

CYB 5000 Cybersecurity Foundations

This course will prepare students for in-depth study and competency building in cybersecurity. Through hands-on work in understanding and applying cybersecurity frameworks and guidelines, students will explore general concepts, current standards and practices, and terminology. Students will be introduced to the most common cybersecurity functions, current and emerging cyber threats, challenges and solutions. The course will engage students in basic solutions design and applying techniques, using current case studies to introduce them to the operational factors, both non-technical and technical that address exposures and responses to cyber threats.

CYB 5100 Architecture of Secure Operating Systems, Applications, and Devices
As innovations involving sensing technology, robotics and the Internet of Things are more frequently deployed in organizations, on vehicles, or found around the home, businesses and personal safety can be highly dependent on the secure architecture of technology. Students will learn key concepts about technology access control design, fault and tamper resistance, testing, and common criteria used to determine if technology solutions are robust enough to withstand attacks such as tampering, denial of service, and unauthorized access.

CYB 5200 Network, Data, and Communications Security
Having a solid defense-in-depth strategy for architecting and operating networked technology provides organizations with operational resilience from cyber-attacks and data breaches. Students will learn key concepts about security architecture, network segmentation, defense in depth, encryption technologies, and backup/replication sites, including cloud-based servers and services.

CYB 5300 Risk Management and Cybersecurity
This course takes a multi-disciplinary approach to the study of risk governance and cybersecurity. Students will learn how to analyze, assess, control, and manage cybersecurity risks from the individual to the operational level. They will develop practical knowledge, analytical skills, and mathematical methods for calculating risk, as well as more artistic skills required to make decisions about which risks to control, and how to control them.

CYB 5400 Cybersecurity Audit, Assessment and Training
This course will teach students how to assess and evaluate cyber security risks, conduct computer security audits, and test preparedness and response levels in the current technology environment. The course will explore standard evaluation and testing methodologies currently used across industries to identify and address cyber security threats. Students will also study current cyber policies and guidance used in both private and public sectors and their implementation.

TMG 5500 Leading Technology Organizations
Successful leaders require more than technical knowledge and skills: they must be able to identify and prioritize strategic challenges and opportunities and champion initiatives to address them. Students will master strategies for building short- and long-tern plans, developing a culture of productivity and excellence, leading high performing teams, strengthening organizational communication, leading change management initiatives, and enabling the leadership potential of others. Additional topics may include individual and group behaviors, interpersonal relationships, and organizational structure and design. Importantly, students will learn the science behind strategic leadership in agile, high-performing technology organizations.

ERM 5400 Business Continuity Planning and Crisis Communication
This course introduces students to the conceptual models, methods and tools of enterprise Business Continuity Management (BCM) and a key component, Global Crisis Communications Management. Students will be exposed to industry best practices and guidelines as developed by international BCM governance and organizations like the Business Continuity Institute (BCI) and the Disaster Recovery Institute (DRI) International. Students will explore how the BCM function provides an enterprise-wide, cross-border, and cross-functional vantage point and how organizations enhance organizational resilience through the strategic use of both the business continuity and cross-cultural crisis communications functions. Students will also review the many crisis communication management tools in use today, including emergency notification systems (ENS), as well as other international standards and crisis management plans.

CYB 5600 Emerging Cybersecurity Threats
In this class, the students will identify and set aside long-standing assumptions “on how we do things in Cybersecurity” to scan the horizon not only for emerging threats, but also to spot emerging opportunities. This is a student-driven class and learners are expected to drive the development of their ideas. The objective of this course is to teach students how to innovate. The learners will achieve this goal, individually or in small teams, by using the Four Lenses of Innovation methodology and other tools. The four lenses of innovation that students will explore and apply in this course are: 1. Challenging Orthodoxies.2. Harnessing Trends.3. Leveraging Resources.4. Understanding Needs. During the course, students will explore and apply each innovation lens to the field of Cybersecurity as a whole, use the lens within specific organizational context, and apply them to select technologies

and processes. The course also provides a structured opportunity to use the Four Lenses of Innovation methodology to chart the students' professional career.

CYB 5601 Cybercrime, Cyberwar, and Threat Actors
The course examines the motivations and capabilities of various cybercrime actors ranging from script kiddies to state-sponsored Advanced Persistent Threats (APTs). The students will learn about the role that the dark web and cryptocurrencies play in facilitating and financing cybercrime. Using some of the most notorious cases of cybercrime, cyber espionage, and military cyber operations, the students will research investigative, defensive, law enforcement, and regulatory actions and their implications on the present and future of cybersecurity.

ERM 6000 Emergency Management & Disaster Recovery
This course examines Organizational Emergency Management & Systems Disaster Recovery, with an emphasis on the importance to an organization of having an emergency management & global IT disaster recovery plan. Major topics include planning for crises, developing levels of preparation, identifying factors that need to be managed, forecasting potential crisis situations, and examining key elements of an emergency management & IT disaster recovery plan.

ERM 6050 Cybersecurity and Cyber-Terrorism
This Cybersecurity and Cyberterrorism fundamentals course will introduce students to the principles of data and technology that frame and define cybersecurity. Students will gain insight into the importance of cybersecurity and the integral role of cybersecurity professionals. Students will explore foundational cybersecurity principles, security architecture, risk management, attacks, incidents, and emerging IT and IS technologies.

CYB 7992 E-Discovery, Digital Evidence & Computer Forensics
Electronic discovery has become a critical component of all major litigations as the key evidence increasingly consists of e-mail and electronic documents. This course will teach you the law of e-discovery, practical best practices provide exposure to the technology behind it all. The focus will be on making you competent as to the legal obligations of e-discovery.

MAN 5580 Project Management
This course teaches project management using several tools from the leading methodologies for managing software projects. The most effective project managers will combine methods to create a "right- sized" methodology appropriate to the organizational culture and project team members' background and experience.

CYB 5500 Special Topics
This course provides the opportunity to offer boutique short-term courses on emerging phenomena, policies, processes, technologies, and techniques in cybersecurity. The expectation is that this will be an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

CYB 6450 Independent Study
This independent study course provides the student with the flexibility to learn more about a topic of interest outside of the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives. Course credit is determined in advance of the course, by the instructor with the approval of the program director.

CYB 6400 Internship
This course consists of an off-campus internship experience supervised by a staff person at the internship site and overseen by a faculty advisor. The internship site must be approved by the program director, and the overall duration of student work must be no less than 150 hours (based on a 3-credit course). At the start of the internship, the student and faculty advisor will jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students will be required to submit weekly reflections, and at the end of the internship, students write a final paper that represents the culmination of the work performed.

CYB 6500 Capstone
In this course, students integrate the skills developed in previous classes into a comprehensive body of knowledge and provide tangible evidence of these competencies. The Capstone has four components: 1.) a brief proposal an project schedule; 2.) the main project deliverable; 3.) a final presentation; and 4.) a reflection on the student's cybersecurity management skills and competencies, with some depth in one or two areas of the profession and grounded in a particular real-world context.

Admissions Requirements

The MS in Cybersecurity is ideal for students with a variety of backgrounds including IT/IS, computer science, engineering, science, and business, as well as early and mid-career professionals with relevant on-the-job experience. Applicants may transfer up to six (6) graduate credits into the program. Applicants with degrees in other fields will be considered individually for admission and are encouraged to apply.

Candidates must possess a bachelor's degree from an accredited college or university and must submit the following items:

- Online application
- Transcripts from all colleges or universities attended
- Personal statement detailing your career goals and interest in the program
- Two academic or professional recommendation letters
- Application Fee
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-Englishspeaking institution)

MS in Data Analytics and Visualization

Yeshiva's Master of Science in Data Analytics and Visualization focuses on data management and "wrangling," data modeling and algorithm development, data interpretation, and data reporting. This is critical to learning the core to Data Science. The MS in Data Analytics and Visualization is ideal for highly motivated individuals who want to build the quantitative, design, and business skills needed to advance to leadership positions as business data analysts.

Program Director

Our faculty are successful practice leads and technical leads on data analysis, data science, and business design teams at both top-tier organizations and high-growth start-ups. They share a passion for working with data to make their organizations and customers more successful, and a commitment to helping prepare the next generation of data analysts. You will benefit from working closely with them on complex data analysis projects that aim to solve real-world business problems.

- David Li, PhD

Curriculum and Degree Requirements

As you progress through the YU Katz School's 30-credit MS in Data Analytics and Visualization program, you will develop a work-ready portfolio of projects and deepen your understanding of the core principles, patterns, and practices of data analysis and visualization. To earn your degree, you must complete seven required foundational courses and nine credits of electives.

Sample Course Sequence

Semester 1	**Semester 2**	**Semester 3**	**Semester 4**
Structured Data Management (3 credits) Project Management (3 credits) Analytics Programming (3 credits)	Computational Math and Statistics (3 credits) Visual Design and Storytelling (3 credits) Elective (3 credits)	Elective (3 credits)	Capstone (3 credits) Elective (3 credits) Business Modeling and Data Analysis (3 credits)

*Elective Courses:

- Talent Analytics, 3 credits
- Data Driven Organizations, 3 credits
- Information Architectures, 3 credits
- Data Science, 3 credits
- Data Product Design, 3 credits
- Internship, 1-3 credits
- Independent Study, 1-3 credits
- Special Topics, 1-3 credits

Course Descriptions

DAV 5000 Business Modeling and Data Analysis
While data analysts need to be competent with a variety of tools, they will most often work with stakeholders who only use spreadsheets. Therefore, deep and broad skills working with spreadsheets and fluency in moving data between spreadsheets, business intelligence applications, and relational databases are critical for data analysts to be effective and credible. In this project-based course, students will build and apply key spreadsheet skills in the service of organizational data management, modeling, and analysis.

DAV 5100 Structured Data Management
Organizations require reports and analyses that are both accurate and useful. This course emphasizes the skills that database developers rely on to 1) translate organizational requirements into information architectures, 2) create operational and reporting databases, 3) manage data sources, 4) perform data integration into reporting databases, and 5) create ad-hoc analytics reports using business intelligence reporting tools. Students will gain both essential theory and hands-on practice, enabling them to build the database systems, supporting data workflows, and reporting architectures required to produce accurate and useful information in support of organizational decisions.

DAV 5200 Visual Design and Storytelling
Analysts must present their data in effective and compelling visualizations. This course combines the best heuristics for data presentation with hands-on experience in creating spreadsheet charts and data visualizations from a variety of source data. Students will learn how to combine text and visualizations to craft stories that promote deeper engagement with data analyses and conclusions.

DAV 5300 Computational Math and Statistics
Deeper math literacy and computational thinking are essential for deeper data literacy. Probability, statistics, and mathematics—especially fundamental linear algebra—are critical to the success of data analysts as they implement increasingly complex solutions. This course is designed to give the non-mathematician practice using mathematical and statistical computational methods in the service of data analytic solutions.

MAN 5580 Project Management
Most data analysis and visualization work is project-based, and successful data analysts are effective at managing projects and collaborating as members of project teams. This course teaches project management using several tools from the leading methodologies for managing software projects. The most effective project managers will combine methods to create a “right-sized” methodology appropriate to the organizational culture and project team members’ background and experience.

DAV 5400 Analytics Programming
Code-based solutions can be richer, more accurate, and more flexible than those that rely on off-the-shelf software and analytic packages. This course teaches the programming skills that data analysts need to prepare structured and unstructured data for downstream analysis. Students will learn to use high-level programming languages to create rich data analysis workflows.

DAV 6500 Capstone
In this course, students will integrate the skills developed in the previous classes into a comprehensive body of knowledge and will provide tangible evidence of analytic and visualization competencies. The capstone will include four components: 1) a brief proposal and project schedule; 2) the main project deliverable; 3) a final presentation; and 4) a reflection on the student’s data analytics and visualization skills and competencies.

DAV 6000 Talent Analytics
To survive and prosper, organizations must make good use of data and analytics to improve their workforce- related processes. This is particularly critical at times of low employee engagement and high turnover. In this course, students will learn the key processes, measures, and tools that enable data-driven workforce analysis to deliver competitive organizational advantage.

DAV 6050 Data Driven Organizations
The best data analysis projects are implemented in the context of an organization's business model, culture, key strategic initiatives, and processes. Data analysts who understand these contexts are more likely to see their efforts lead to improved organizational processes and/or decision-making. This course examines three important organizational-level analytical frameworks and emphasizes using data, analysis, and experimentation within each of these frameworks. Students will also be introduced to centralized data warehouses.

DAV 6100 Information Architectures
Organizations combine data from many different sources, including spreadsheets, databases, and data warehouses. As the volume, variety, and velocity of data increases, more enterprise data is stored in cloud-based distributed data stores. In this course, students will learn to design, populate, and report on these enterprise data architectures.

DAV 6150 Data Science
Frequently, analysts use data to describe the current state of an organization. Data science extends the analyst's reach into the future. Data science has been almost exclusively the domain of people who have Science, Technology, Engineering and Math (STEM) degrees, and especially those with a quantitative background. Recent fast-paced tool development and abstraction now allow motivated data analysts to perform useful and rigorous predictive analyses using high level languages and their rich scientific ecosystems. This course will cover classification, regression, and clustering methods, and students will apply these methods in designing, modeling, and building model applications that use natural language processing and recommender systems.

DAV 6200 Data Product Design
Successful entrepreneurs and consultants create value. Data analysts who can work alongside or act as value architects create more organizational value, more quickly. Today, this means using data, analysis, and experimentation to better understand customer goals and preferences. In this course, students learn analytical frameworks for using data in the service of customer insight, customer development, value proposition refinement, and product development.

DAV 6300 Special Topics
This course provides the opportunity to offer boutique short-term courses on emerging phenomena, policies, processes, technologies, and techniques in data analysis and visualization. The expectation is that this will be an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

DAV 6400 Internship
This course consists of an off-campus internship experience supervised by a staff person at the internship site and overseen by a faculty advisor. The internship site must be approved by the program director, and the overall duration of student work must be no less than 150 hours (based on a 3-credit course). At the start of the internship, the student and faculty advisor will jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students will be required to submit weekly reflections, and at the end of the internship, students write a final paper that represents the culmination of the work performed. *Students must be in good academic standing to apply for the internship class.

DAV 6450 Independent Study
This independent study course provides the student with the flexibility to learn more about a topic of interest outside of the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives. Course credit is determined in advance of the course, by the instructor with the approval of the program director.

Admissions Requirements

Successful candidates must exhibit the potential to excel in this demanding field upon graduation and meet the following qualifications:

- Bachelor's degree from an accredited college or university
- Minimum undergraduate GPA of 3.0
- Completion of at least one calculus course, one statistics course, and one programming course, each with a grade of B+ or better in the last three years is strongly recommended.

To apply for the MS in Data Analytics and Visualization, you must submit the online application along with:

- Current resume that demonstrates a strong interest in working with data
- Official transcripts from all institutions attended
- A personal statement that describes your goals for pursuing the MS in Data Analytics and Visualization ● Two letters of recommendation
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)

Note: Applicants must also complete our challenge exam and have an individual interview with MS in Data Analytics and Visualization faculty.

Challenge Exam

All MS in Data Analytics and Visualization applicants are required to complete a challenge exam that will help us evaluate how prepared you are for the program.

Bridge Workshops

If your application demonstrates that you have the potential to succeed in the MS in Data Analytics and Visualization program, but you lack certain prerequisite courses or your challenge exam reveals that you may need to brush up on certain subjects before you can begin, you may be conditionally accepted, contingent upon successful completion of one or more of the following three-week, online workshops:

- Spreadsheet Basics
- Fundamentals of Programming
- Fundamentals of Database
- Data Analytics Math

MS in Digital Marketing and Media

Yeshiva University's M.S. in Digital Marketing and Media, based in New York City, is an industry-driven, project-based degree with a distinct focus on the power of digital media and social drivers of behaviors. This unique master's degree arms you with essential media, design, communication, behavioral, analytical, technical and research skills. You'll learn evidence-driven strategies for identifying and segmenting markets, reaching and engaging potential consumers, and converting them into loyal customers. And you'll master in-demand strategies for social media, SEM, SEO, mobile, email, content and video. Get your M.S. in Digital Marketing and Media from a world-class university. One-year or 15-month programs available. Full time, part time or weekend. Classes in Manhattan.

In the last decade, digital marketing and media has shifted from a niche skillset to a baseline expectation. Companies large and small want professionals who take a digital-first approach to campaigns and brand management using tools such as SEM, SEO, geotargeting, email, content and video. They also expect that their digital spends are based on analytics that produce data-driven insights.

Program Director

- Joseph Panzarella - Program Director and Clinical Assistant Professor, MS in Digital Marketing and Media

Curriculum and Degree Requirements

The flexible 30-credit program is designed to allow students to work while completing their degree with online and on-campus course options. Students have the freedom to take only courses which interest them and create their own path within the program. You may pursue either the Digital and Social Strategies or Marketing Analytics track.

Sample Course Sequence

Semester 1	Semester 2	Semester 3	Semester 4
Marketing Management and Strategy (3 credits) Communications (3 credits) Consumer Behavior and Customer Relationship Management (3 credits)	Brand Management (3 credits) Elective (3 credits) Elective (3 credits)	Elective (3 credits) Marketing Research (3 credits) Methods (3 credits)	Elective (3 credits) Capstone (3credits)

***Elective Courses (Marketing Analytics track)**

- Analytics Programming
- Predictive Analytics
- Visual Design and Storytelling
- Web Analytics and SEO
- Special Topics
- Independent Study
- Internship

***Elective Courses (Digital and Social Strategies track)**

- Applied Social Media
- Digital Storytelling
- Web Design and User Experience
- Web Analytics and SEO

- Special Topics
- Independent Study
- Internship

Course Descriptions

MAR 5100 Communications
Our method is tool-based and across the semester we will introduce and workshop six flexible and replicable tools to support a more radically human business communications and marketing. The tools will be workshopped within the context of our lectures and readings and supported by cases. We will include five new marketing clinics as topic area deep dives: 1. Integrated search / content marketing, 2. Real social, 3. CRM/1st party data, 4. Experience planning workshop and 5. Multi-touch attribution modelling.

The approach is decidedly learning-by-doing, with the group project and its three presentations being the vehicle for students to embrace and demonstrate their newfound capability for leveraging these tools, models and strategies in the service of creating their go-to-market campaign plan for their business – the semester-long group exercise and final deliverable.

MAR 5507 Consumer Behavior and Customer Relationship Management
Customer Relationship Management (CRM) has changed the conversation in consumer-focused marketing, and companies are successful when they use CRM to optimize the identification, acquisition, growth, and retention of desired customers. This course provides students with a practical understanding of the issues that affectB2C and B2B relationships, including the psychological, social and cultural driver's influencer of consumer behavior. Students master best practices for successful CRM including a company's response to consumer preferences, funnel management, messaging and sales activities, CRM systems and effective data management and application across the organization.

MAR 5616 Marketing Research Methods
Marketing research is an organized way of developing and providing information for decision-making purposes. This course focuses on both qualitative and quantitative aspects of marketing research and how they help managers in addressing substantive marketing problems such as market segmentation, estimating market potential, forecasting, developing advertising and pricing policies, and designing and positioning new products.

MAR 5815 Marketing Management and Strategy
This course provides Marketing students with a solid foundation in modern marketing from a strategic, general management perspective. The concepts and techniques presented in the class address issues such as customer insights, competitive analysis, market segmentation, positioning strategy and marketing decisions that managers make to support and effective marketing strategy. To reflect the scope of today's business world, the course will approach marketing across a variety of contexts, incorporating diverse perspectives such as domestic and international products and services as well as conventional and unconventional communications methods.

MAR 5838 Brand Management
This course is devoted to the management of brand equity, i.e., the value of the brand to the organization. Specific topics to be covered include defining and measuring brand equity, branding a service, launching a new brand, brand positioning, building and leveraging a brand, strategic brand management, and brand extension.

MAR 5899 Marketing Capstone
The purpose of this course is to provide students in their final semester with the opportunity to work with a real-world client in the development of a complete marketing plan. To this end, student will draw upon the entirety of their Master of Science in Marketing program to ideate, develop and create a full marketing plan ready for implantation that solves the clients marketing problem. In addition, students will compete in teams to "pitch" and "win" the business as they would in a real-life scenario. This course is designed to enable students to integrate and apply, in real-time, marketing knowledge and skills to a "real-world" client's marketing problem.

DAV 5400 Analytics Programming
Code-based solutions can be richer, more accurate, and more flexible than those that rely on off-the shelf software and analytics packages. This course teaches the programming skills that data analysts need to prepare structured and unstructured data for downstream analysis. Students will use high-level programming languages to create rich data analysis workflows.

DAV 5200 Visual Design and Storytelling
Analysts must present their data in effective and compelling visualizations. This course combines the best heuristics for data presentation with hands-on experience in creating spreadsheet charts and data visualizations from a variety of source data. Students will learn how to combine text and visualizations to craft stories that promote deeper engagement with data analyses and conclusions.

MAR 5726 Social Computing in the Information and Interaction Age
Social computing brings people together in virtual spaces to facilitate various kinds of technology mediated social participation, such as connecting, discussing, sharing, and recommending. This course explores the revolutionary upheavals and societal trends that resulted from recent generations of internet and communication technologies (ICTs). We'll explore the applications and platforms available today— including social networking, virtual communities, artifact and knowledge sharing sites, and mobile and location-based technologies and services—as well as emergent trends in this rapidly changing space. We'll also analyze the social aspects of online interaction, using core behavioral concepts such as group and community formation and identification, social network theory, individual motivations, and trust in addition to basic media theories such as social presence and media richness. Finally, we'll examine the impact of social media and modern communication tools on areas like commerce, entertainment, networking and relationship building, community action, sustainability, national security, emergency management, healthcare, citizen science, and education.

MAR 5727 Applied Social Media
If you are one of the over a billion registered users of Facebook, then you are familiar with using social media. But what is social media exactly? And how does it differ from other forms of media? We answer these questions as we explore how the buzz word "social media" has evolved and transformed the way we think about both marketing and how we communicate with each other. Mobile and web-based technologies allow each of us to create, share and engage with content quickly, virtually, and widely. The new technologies that continue to surface and evolve create new ways for people to communicate and experience the world. Marketers use these advancements in technology and communication to achieve their marketing goals in more dynamic and efficient ways than ever before. We will study social media marketing with this bigger picture in mind. Most importantly, we will learn how to apply the practices and tools of social media marketing by observing, analyzing, and experimenting.

MAR 5728 Digital Storytelling
Marketers tell stories with purpose, and digital marketers create content that resonates with audiences through different non-traditional channels. This course equips students with the knowhow to control and integrate the narrative across multiple media for awareness, advertising, branding, public relations, and retention by telling compelling stories and creating authentic experiences. Students will use multiple media formats and digital/physical artifacts to tailor messages for a variety of market segments that effectively engage, excite, and convert leads into long-term customers.

MAR 5729 Web Design and User Experience
Compelling and functional websites are at the heart of every great company's business strategy. Behavioral research tells us that digital media should be useful, intuitive and visually appealing. They must also tell a consistent story across each stage of the customer journey. This course introduces foundational concepts of design and development, using best practices in information architecture and user experience. By the end of the course students will be able to create websites and digital properties with strong value propositions and calls to action that support a company's conversion goals.

MAR 5730 Web Analytics and SEO
Web Analytics and SEO allow companies to achieve sales targets and overall business objectives. By tracking online visitors and analyzing their activities, marketers can refine their keyword strategies, and optimize digital properties to increase time on site and conversion rates. This course prepares students to effectively drive and measure web

traffic using a variety of digital platforms. They will also explore how to aggregate and analyze data from different sources to make actionable recommendations.

MAR 5731 Predictive Analytics
Effective marketers harness the power of big data to develop consumer insights and make data-driven decisions. This course introduces students to the application of statistical and research-based techniques that predict behavior. Students will analyze business problems and construct models to ensure effective marketing campaigns and initiatives.

MAR 5732 Omnichannel Communications Optimization Omnichannel
Communications optimization allows us to create coherent and consistent messaging across all touchpoints, improving both SEO results and the conversion journey. Through research into messaging, search engine algorithms, and keyword bidding strategies, students will learn to identify the optimal language, content, and strategies to reach communication goals.

MAR 5734 Influencer Content Strategy
Influencers have emerged as an authentic, trustworthy source within a fragmented media landscape caused by the explosion of digital and social channels. In this course, we'll explore how influencers leverage the psychology of persuasion to craft contagious content, build stickier messages, and get any product, idea, or behavior embraced by the masses. We'll also analyze how influencers use the power of their social networks and the credibility of word-of-mouth influence to spread information, both online and offline. Finally, we'll discuss the future of influencer strategies and their relationship to broadcast, digital, social media, and mobile channels

MAR 5900 Independent Study
This independent study course provides the student with the flexibility to learn more about a topic of interest outside the formal course setting. The subject should be chosen in consultation with a faculty advisor who acts as the student's supervisor, and with the permission of the program director. The student is required to submit a course contract describing the course of study and its specific learning objectives. Course credit is determined in advance of the course, by the instructor with the approval of the program director.

MAR 5901 Internship
This course consists of an off-campus internship experience supervised by a staff person at the internship site and overseen by a faculty advisor. The internship site must be approved by the program director, and the overall duration of student work must be no less than 150 hours (based on a 3-credit course). At the start of the internship, the student and faculty advisor will jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students will be required to submit weekly reflections, and at the end of the internship, students write a final paper that represents the culmination of the work performed. *Students must be in good academic standing to apply and register for the internship course.

MAR 5902 Special Topics
This course provides the opportunity to offer boutique short-term courses on emerging phenomena, policies, processes, technologies, and techniques in digital and social strategies, and marketing analytics. The expectation is that this will be an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

Admissions Requirements

Candidates must exhibit the potential to excel in this demanding field and meet the following qualifications:

- Possess a bachelor's degree from an accredited college or university
- To apply for the MS in Digital Marketing and Media, candidates must submit the online application along with:
- Official transcripts from all universities attended
- Résumé

- Personal Statement describing your goals and your commitment to contribute to and complete the MS program
- Two academic or professional recommendation letters
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)
    - NACES course-by-course evaluation (for degrees completed outside of the US and English-speaking Canada)
        - Katz School offers a fully online, 11-week intensive program for applicants with low intermediate to upper-intermediate English reading, speaking and writing skills. If you'd like to learn more, visit https://www.yu.edu/katz/online-intensive-english.

MA in Mathematics

The MA in Math at Katz School provides the flexibility to customize your curriculum. In addition to traditional coursework, you may also enroll in special topics or design an independent study under the mentorship of senior faculty. You may also choose to focus on financial mathematics and take courses in the departments of Mathematical Sciences, Economics, Physics, and Computer Science.

Master's in Mathematics- students are required to complete ten courses (30 credits) and a thesis or comprehensive project in order to graduate. Students may replace the thesis or project with a written comprehensive exam.

Program Director and Faculty

- Marian Gidea – Program Director and Professor, MA in Mathematics
- Morton Lowengrub, Professor and Provost Emeritus, MA in Mathematics
- Edward Belbruno, Clinical Professor of Mathematics
- Antonella Marini, Professor of Mathematics
- Wenxiong Chen, Professor and Chair, MA in Mathematics
- Pablo Roldan, Assistant Professor of Mathematics
- Peter Nandori, Assistant Professor of Mathematics

Curriculum

Core Courses

Required Courses (12 credits)
Students must complete four of the following courses:

- Real Variables
- Complex Variables
- Topology
- Mathematical Statistics
- Ordinary Differential Equations
- Partial Differential Equations
- Mathematical Modeling
- Scientific Computing

Electives (18 credits)
Students must complete six of the following courses:

- Mathematics of Finance
- Time Series Analysis
- Stochastic Calculus
- Network Science
- Computational Topology
- Dynamical Systems
- Differential Geometry
- Applied Functional Analysis
- Applied Mathematics
- Methods of Mathematical Physics

See course descriptions under PhD in Mathematics*

Admission Requirements

Admission to the Master of Arts Program in Mathematics at Yeshiva University is competitive, and the following requirements are necessary rather than sufficient conditions for admission.

- A bachelor's degree from an accredited institution
- A major in mathematics, statistics, computer science or one of the physical or engineering sciences. In exceptional cases, applicants holding a major in a biological science, economics or finance may be considered. All applicants, regardless of major or other qualifications, must have completed courses in Multivariable Calculus and Linear Algebra at the time of application.
- A B average (GPA of 3.0/4.0) in science and mathematics courses.
- Three letters of recommendation.
- GRE scores.
- TOEFL scores for graduates of non-English-speaking colleges or universities, as described below. This requirement may be waived by the Department of Mathematical Sciences if the applicant presents evidence that his or her native language is English.

Deadlines: The Master of Arts Program in Mathematics currently operates on a rolling admission schedule, in which admissions are processed, as they are received, for the next available starting date. Applicants may begin the program in either the spring or fall semesters.

Program Requirements:

Credit Requirement: 30 credits.

Residence Requirement: A minimum of 24 of the 30 credits must be taken at the School. Exceptions must be approved by the director of graduate studies.

Examination Requirement**:** The student is required to obtain a grade of at least B on a written comprehensive exam, or on a master thesis.

The comprehensive examination will cover Real Analysis (Introduction to Analysis, Functions of a Real Variable) and Complex Variables (Functions of a Complex Variable), as well as one advanced topic in Applied Mathematics of the student's choice. This examination may not be taken more than twice.

A grade of A must be received in this examination for a student to continue in the Ph.D. program.

The comprehensive examination must be passed before the end of the program, or the master thesis must be prepared and defended by the end of the program.

PhD in Mathematics

We also offer a doctoral program in math. The program emphasizes individual study in one or more areas of research pursued by department faculty, including fluid dynamics and shock waves; geometric analysis; optimization; complexity theory; partial differential equations of elliptic, hyperbolic and mixed type; the theory of risk; mathematical, theoretical and computational physics; universal algebras; operator theory; and the theory of plasma waves.

Applicants without master's degrees can be admitted to the direct doctorate in math and earn an MA in Mathematics along the way to the PhD. Those applicants must meet admissions requirements for both the MA and PhD programs.

Degree programs are formulated by students in consultation with an adviser and must receive departmental approval. It is expected that students will have multivariable calculus and linear algebra as a prerequisite for

graduate standing. Upon admission, each student must consult with the director of graduate studies before registration, and secure detailed regulations concerning departmental rules and policies.

A recommendation for any degree may be reversed at any time prior to the actual conferring of the degree. Certain courses in which the subject matter varies from year to year may be taken more than once for credit, with the written approval of the graduate director.

Not every course listed is offered every semester. Information as to which courses are being given, instructors, hours, and room assignments is available at the time of the registration. All courses are 3 credits per semester unless otherwise indicated.

Course Descriptions

MAT 5300 Introduction to Analysis. (3 credits) Real and complex number systems, elements of topology on the real line, rigorous treatment of limits, continuity, differentiation, and Riemann integration, introduction to metric spaces, pointwise and uniform convergence for sequences and series of functions, introduction to differential forms, introduction to Lebesgue integration.
Prerequisite: graduate standing or permission of department.

MAT 5651 Functions of a Real Variable. (3 credits) Fundamentals of real analysis and applications; development of real number system; set-theoretic notions; Lebesgue measure and integral; introduction to Hilbert space; real orthogonal expansion; L^p spaces; applications to the Fourier series and Fourier and more general transforms.
Prerequisite: graduate standing or permission of department.

MAT 5405 Functions of a Complex Variable. (3 credits) Integration and differentiation in the complex domain – Cauchy's theorem, Cauchy integral formula, Laurent expansion, residues; elements of conformal mapping, special functions, series, and product representations.. *Prerequisite: graduate standing or permission of department.*

MAT 5310 Topology. (3 credits) Point set topology: metric spaces and topological spaces, compactness, connectedness, continuity, extension theorems, separation axioms, quotient spaces, topologies on function spaces, Tychonoff theorem.
Prerequisite: graduate standing or permission of department.

MAT 5330 Algebra. (3 credits) Sets, Boolean algebra, cardinal numbers, groups, rings and ideals, integral domains, fields, algebraic number fields, Galois theory.
Prerequisite: graduate standing or permission of department.

MAT 5250 Differential Geometry. (3 credits) Classic differential geometry of curves and surfaces in space; intrinsic geometry of a surface: tensor calculus and differential forms with applications to Riemannian geometry in n dimensions; differential and Riemannian geometry in the large. *Prerequisite: graduate standing or permission of department.*

MAT 5209 Ordinary Differential Equations. (3 credits) Differential equations in the real domain; existence and stability theory, Sturm-Liouville problem for linear equations, techniques of solution for special classes; differential equations in the complex domain, equations of Fuchsian type and special functions; transform methods; Hamiltonian systems.
Prerequisite: graduate standing or permission of department.

MAT 5340 Partial Differential Equations. (3 credits) Introduction to the theory of partial differential equations of second order; problem of Cauchy, boundary value problems of potential theory, variational principles.
Prerequisite: graduate standing or permission of department.

MAT 5110 Mathematical Statistics. (3 credits) Events and probabilities, random variables, means and variances, conditioning and independence, the central limit theorem, normal distribution and other important distributions, confidence intervals for one-parametric models, maximum likelihood estimation, conditional probability density functions.
Prerequisite: graduate standing or permission of department.

MAT 5510 Functional Analysis. (3 credits) Banach and Hilbert spaces, linear functionals, Hahn-Banach theorem, dual spaces, linear operators, closed graph theorem, Riesz theory for compact operators, spectral theory, function and Banach algebras**.** *Prerequisite: graduate standing or permission of department.*

MAT 5401 Dynamical Systems. (3 credits) Qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; lowdimensional dynamics; introduction to ergodic theory. *Prerequisite: graduate standing or permission of department.*

MAT 5100 Mathematical Modeling. (3 credits) Ordinary and partial differential equations of physical and biological problems; simplification, dimensional analysis, scaling, regular and singular perturbation theory, variational formulation of physical problems, continuum mechanics, fluid flows. *Prerequisite: graduate standing or permission of department.*

MAT 5640 Mathematics of Finance. (3 credits) Fundamental topics will be covered: risk, arbitrage, mathematical models for asset price movements (based on trees, PDEs, and martingales); pricing of financial derivatives, and hedging; introduction to stochastic calculus, and to the Black-Scholes model. *Prerequisite: graduate standing or permission of department.*

MAT 5511 Stochastic Calculus. Stochastic processes, including Brownian processes and Poisson processes, stochastic integration and differentiation, solving stochastic differential equations, martingale calculus, martingale measures, Black-Scholes model of a financial market.
Prerequisite: graduate standing or permission of department.

MAT 5400 Scientific Computing. (3 credits) Numerical computation for mathematical sciences: error analysis, floating-point arithmetic, nonlinear equations, numerical solution of systems of algebraic equations, banded matrices, least squares, unconstrained optimization, polynomial interpolation, numerical differentiation and integration, numerical solution of ordinary differential equations, truncation error, numerical stability for time dependent problems and stiffness.
Prerequisite: graduate standing or permission of department.

MAT 5500 Methods of Mathematical Physics. Selected topics in mathematical physics, such as mathematical methods of classical mechanics, electrodynamics, relativity, quantum mechanics and quantum field theory.
Prerequisite: graduate standing or permission of department.

MAT 5410 Topics in Analysis. (3 credits) Possible topics may include: abstract functional analysis, Hilbert and Banach spaces, general operator theory: integral equations and transforms, Fredholm and Hilbert-Schmidt theory, special equations.
Prerequisite: graduate standing or permission of department.

MAT 5420 Topics in Complex Variables. (3 credits) Possible topics may include: geometrical function theory, Riemann surface theory, extremal problems, conformal mapping, automorphic functions, and Nevanlinna theory.
Prerequisite: graduate standing or permission of department.

MAT 5311 Topics in Differential Equations. (0-3 credits) Possible topics may include: general theory of linear partial differential equations, Cauchy and boundary value problems, estimates, regularity of the solutions: nonlinear partial differential equations.
Prerequisite: graduate standing or permission of department.

MAT 5390 Topics in Topology. (3 credits) Possible topics may include: homotopy theory, fundamental group and covering spaces, singular homology and cohomology theory, axions of homology theory, Mayer/Vietoris sequence, calculation of homology and cohomology of standard spaces, cell complexes and cellular homology, de Rham theorem on isomorphism of de Rham differential-form cohomology and singular cohomology with real coefficients. Differentiable manifolds and smooth maps, tangent bundles, immersions, embeddings, submanifolds, transversality, Sard's Theorem, intersection theory. Computational topology. *Prerequisite: graduate standing or permission of department.*

MAT 5390 Topics in Dynamical Systems. Possible topics may include elements of ergodic theory, invariant measures and sets, ergodicity, ergodic theorems, mixing, spectral theory. Applications of dynamical systems to number theory, celestial mechanics, chaos, and fractals. *Prerequisite: graduate standing or permission of department.*

MAT 5260 Topics in Differential Geometry. (1-3 credits) Possible topics may include: Lie groups and Lie algebras; vector bundles and connections. Morse theory. Elements of Hodge theory. Tensor calculus with applications to geometry in *n* dimensions. Elements of geometric analysis (harmonic maps). Applications to special and general relativity, high-energy physics and gauge-field theory.
Prerequisite: graduate standing or permission of department.

MAT 5491 Topics in Complex Systems. (3 credits) Possible topics may include: nonlinear and fractal time series; computational methods; network science; applications include econophysics, fractal statistics, and neural physics.
Prerequisite: graduate standing or permission of department.

MAT 5200 Topics in Foundations of Mathematics. (3 credits) Possible topics may include: formal logic, naive set theory, Russell's paradox, sets and classes, transfinite ordinals and cardinals, the real number system, wellordering and Zorn's lemma, other systems of set theory, relative consistency proofs, consistency of the axiom of choice and the generalized continuum hypothesis, Boolean logics, truth functions, quantification theory, Godel's completeness theorem, Turing machines, recursive functions, unsolvable decision problems, word problems, Post normal systems, Hilbert's tenth problem, incompleteness theorems, computable functionals, degrees of recursive unsolvability.
Prerequisite: graduate standing or permission of department.

MAT 5901 Topics in Mathematics of Finance. Possible topics may include: portfolio theory, risk management, game theory, applications to financial economics and econometrics. *Prerequisite: graduate standing or permission of department.*

MAT 5402 Topics in Scientific Computing. (3 credits) This is an advanced graduate course on scientific computing. The aim of the course is to present some advanced techniques of scientific computing with applications to many areas of science. For example: integration of ODEs and PDEs for physics and engineering; singular value decomposition for dimension reduction and compression; Monte Carlo methods for statistics, probability, and finance; optimization for operations research.
Prerequisite: graduate standing or permission of department.

MAT 5931 Graduate Student Seminar (1 credit). Students attend seminar lectures to get exposure and knowledge in various areas of modern mathematics.
Prerequisite: graduate standing or permission of department.

MAT 5940 Internship/Practical Training (3-6 credits). The internship/practical training provides graduate students with opportunities to gain practical, career-related experience in a variety of supervised field settings. This involves participation in a project that requires applications of mathematics, numerical methods, or statistics, which is conducted outside the university in a governmental, commercial, or academic setting. Open only to graduate students with permission of the Director of Graduate Studies. Students must submit a brief written description of

their work to the DGS before starting the internship and submit a written summary of their work when it is completed.

MAT 5900 Readings in Mathematics (3-6 credits). Topics to be arranged, depending on the interests and backgrounds of the students. Given only by arrangement with the instructor. *Prerequisite: graduate standing or permission of department.*

MAT 8970 Thesis Research (1-9 credits). Preparation of MA or PhD Thesis under the supervision of adviser; credits will vary for masters and doctoral students. *Prerequisite: graduate standing or permission of department.*

Admission Requirements

Most of our students have an undergraduate degree or other experience in economics, mathematics, computer science, physics, chemistry, engineering, and similar quantitative majors. Some students also come from finance and behavioral sciences so long as they've taken several mathematics courses. The faculty believe it is academically important to include students from a variety of different backgrounds and with a diverse set of experiences. Prerequisites include one course in multivariate calculus (Calc 3), one course in linear algebra, and one course in statistics/probability with a grade of B or better.

Need a refresher? We've developed an Advanced Mathematics course for applicants who need a little more work before the program starts. For more information, contact Katzgrad@yu.edu.

Application Requirements

Candidates must possess a bachelor's degree from an accredited college or university and must submit the following items:

- Online application
- Official transcripts from all colleges or universities attended
- Official GRE scores – Use Code 4778
- Résumé
- Personal statement describing your goals in pursuing a mathematics degree at the YU Katz School
- Two academic or professional letters of recommendation
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution) ○ NACES course-by-course evaluation (for degrees completed outside of the US and English-speaking Canada)
    - ○ Katz School offers a fully online, 11-week intensive program for applicants with low-intermediate to upper-intermediate English reading, speaking and writing skills. If you'd like to learn more, visit https://www.yu.edu/katz/online-intensive-english.

MA in Physics

MA in Physics students can focus their studies in two ways: Academic or Industrial. With an academic focus, students build strong credentials for applying to top PhD programs in physics and engineering, and to increase the chances of securing full financial support in those programs.

With an industrial focus, students develop strong tools to transition into high-end industrial jobs in the STEM field. In addition to taking applied physics and engineering courses from the academic track, students may take up to 6 credits in mathematics, business or finance.

Program Director

- Fredy Zypman, Ph.D, Program Director

Curriculum and Degree Requirement

Note: BA/MA students may be able to complete the MA program in 2 semesters if they transfer 12 credits of EGR or PHY 5000 towards their graduate degree. Courses within any given major or minor require a grade of a "B" or better to fulfill its requirement. Students interested in this option need to make an appointment with an academic advisor as soon as possible and make sure to register for classes with the 5000 code. For other students, the full graduate program will take at least 3 semesters to complete.

*Students may select 30 credits from the following list of courses with faculty advisor approval**

Course Name	**Credits**		**Course Name**	**Credits**
EGR/PHY 5321 Electromagnetic Theory	3		EGR 5810 Advanced Physics and Engineering Laboratory	3
EGR/PHY 5322 Electromagnetic Theory 2	3		EGR/PHY 5510 Applied Statistical Thermodynamics	3
EGR/PHY 5301 Computational Physics and Engineering	3		EGR 5621 Quantum Engineering	3
EGR/PHY 5303 Mathematics for Physics and Engineering	3		EGR 5622 Quantum Engineering 2	3
EGR 5221 Engineering Mechanics	3		EGR/PHY 5036 Complex Systems in Science and Engineering	3
EGR 5222 Engineering Mechanics 2	3		EGR 5935 Applied Physics Colloquium	1
PHY 5912 Research in Physics	3			

*With department and advisor approval, students may substitute up to 6 credits from Katz School of Science and Health or Sy Syms School of Business

Admissions Requirements

Candidates must possess a bachelor's degree from an accredited college or university as well as the following pre-requisite physics courses, including at least one course with a lab, with a grade of B+ or better:

- Mechanics
- Electromagnetism
- Two intermediate/advanced courses

OTD in Occupational Therapy

Occupational therapists (OTs) help clients gain greater independence and confidence in performing the tasks of living – improving their quality of life, health and wellness, and connection to community. Through clinical practice, education and research, and program and policy development, OTs advocate for clients' well-being—and support clients in advocating for themselves.

Yeshiva University's entry-level Doctor of Occupational Therapy (OTD) will prepare you for a lifetime of helping people. The OTD program integrates theory, research, and practice, combining interactive courses with hands-on, state-of-the-art labs, and fieldwork in a variety of clinical settings. Through a student-practitioner approach, you'll work alongside faculty who are clinical experts in their fields, and you will learn to translate research into evidence-based interventions and protocols – with a focus on culturally relevant, ethical client-centered care; occupational performance across the life span; wellness and prevention; technological advancements to promote participation; leadership and advocacy; and scholarship.

An entry-level OTD prepares graduates to enter the OT profession with advanced skills beyond the generalist level, including administration, leadership, program and policy development, advocacy, education, and theory development. It equips graduates with the skills to develop occupational therapy services that broaden the populations we serve, expand the profession's intellectual boundaries, and to better address complex and everchanging health care and education settings.

Accreditation: Yeshiva University's Occupational Therapy Doctorate program has been granted full accreditation by the Accreditation Council for Occupational Therapy (ACOTE) the American Occupational Therapy Association (AOTA) at www.acoteonline.org. . As a fully accredited program, graduates are eligible to sit for the national certification examination to qualify as an occupational therapist by the National Board for Certification in Occupational Therapy (NBCOT), Inc. An individual will be considered an Occupational Therapist, Registered (OTR) following successful completion of this certification exam. All 50 states, plus Washington, DC, Puerto Rico, and Guam, require occupational therapists to hold a license in order to provide occupational therapy services. The National Board for Certification in Occupational Therapy (NBCOT) administers the national certification exam. Initial certification with NBCOT is one of the core licensure requirements in the occupational therapy profession. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination as well as eligibility to obtain state licensure. For further questions, one may reach ACOTE by phone c/o AOTA, at 301-652-6611.The National Board for Certification in Occupational Therapy (NBCOT) can be reached at www.nbcot.org.

Program Director, Faculty and Staff

- Gioia Ciani, OTD, MSOT, OTR/L, Occupational Therapy Program Director and Associate Professor
- Teresa Ludwig, OTD, MSOT, OTR/L, Academic Fieldwork Coordinator and Clinical Assistant Professor
- Goesta Schlege, PhD, OTR/L, Doctoral Capstone Coordinator and Clinical Assistant Professor
- Amiya Waldman-Levi, PhD, OTR/L, Director of Scholarship and Research and Clinical Associate Professor
- Terese Betts, OTD, MSOT, OTR/L, Clinical Assistant Professor
- Melanie Evangelista, MSOT, OTR/L, full-time Clinical Assistant Professor
- Ariel Rosario, Jr., MA, Academic Program Coordinator

Curriculum and Degree Requirements

YU's entry-level doctorate is a full-time program and can be completed in under three years (8 semesters). YU's OTD program is transformative and empowering. The philosophy views human experience through a lifespan perspective, providing a rich context from which to understand engagement in occupations. Occupational engagement and occupation-based interventions are the central themes.

OTD Course Sequence		
Semester 1	**Semester 2**	**Semester 3**
• Occupational Therapy Profession & Practice (3 credits) • Introduction to Doctoral Fieldwork I (1 credit) • Assessment & Screening I (3 • credits) • Introduction to Scholarship and Research (2 credits) • Clinical Skills & Procedures (2 credits) • Anatomy and Human • Movement (5 credits)	● Occupational Performance in the Older Adult Population (5 credits) ● Skills Lab: Older Adult (2 credits) ● Fieldwork I – Older Adult (1 credit) ● Assessment & Screening II (2 credits) ● Brain, Behavior and Occupation (3 credits) ● Scholarship and Evidence-Based Practice I (3 credits) ● Occupations in Practice through the Lifespan (2 credits) ● Introduction to Doctoral Studies (1 credit)	● Occupational Performance in the Adult Population (5 credits) ● Skills Lab: Adult (2 credits) ● Fieldwork I – Adults (1 credit) ● Scholarship and Evidence-Based Practice II (3 credits) ● Preparatory Methods I (3 credits) ● Assistive Technology (4 credits)
Semester 4	**Semester 5**	**Semester 6**
● Occupational Performance in the Child and Adolescent Population (5 credits) ● Skills Lab: Children and Adolescents (2 credits) ● Fieldwork I-Children and Adolescents (1 credit) ● Doctoral Fieldwork II (1 credit) ● Preparatory Methods II (4 credits) ● Occupational Wellness (4 credits) ● Leadership and Advancement in Practice (4 credits)	● Preparation for Doctoral Professional Practice (1 credit) ● Fieldwork II-A (12 credits)	● Capstone Project I (1 credit) ● Fieldwork II-B (12 credits)
Semester 7	**Semester 8**	
● Capstone Project II (2 credits) ● Capstone Experience I (5 credits)	● Capstone Experience II (6 credits) ● Capstone Experience III (2 credits)	

Course Descriptions

OTH 5100 Occupational Therapy Profession & Practice
This course is an introduction to the field of occupational therapy, including the history, philosophical beliefs, areas of practice, and roles of practitioners. The focus of the course is on developing an awareness of professional organizations, ethics and values with an emphasis on the Occupational Therapy Practice Framework (OTPF4). Concepts such as theory, science occupation, service delivery models, legislation, and liability will be included and integrated with the content of the course.

OTH 5101 Introduction to Doctoral Fieldwork I
Introduction to Fieldwork I is designed to assist in professional role development and to prepare the student for their first fieldwork experience and to introduce the student to a variety of traditional and emerging practice areas. Concepts such as IPE, technology, collaboration, licensure reimbursement systems, and ethics will be included and integrated with the content of the course.

OTH 5102 Assessment & Screening I
This course will provide an introduction to standardized and non-standardized assessment methods relevant to the practice of occupational therapy across the lifespan. Topics covered include assessment selection and implementation at various stages of intervention, statistical methods, and interpretation of data. This course will provide instruction in screening and assessment of visual, perceptual and cognitive skills as well as standard physical assessments for range of motion and strength. Concepts such as intervention, evidence-based practice, therapeutic use of self, quantitative and qualitative analysis will be included and integrated with the content of the course.

OTH 5103 Introduction to Scholarship and Research
This course starts the development of the "practice scholar" and will focus on building skills by gaining an understanding of research in health care, utilizing logical and critical thinking skills to navigate research data, asking evidence-based questions, applying theory to research, and performing literature searches. Additionally, students will gain knowledge about research design, quantitative and qualitative methods, data collection and analysis, and professional scholarly writing. Students will ask a clinical research question, design quantitative and qualitative data collection tools, collect data, analyze with theory, and write up findings. Concepts such as grants, instructional design, standardized testing, and methodology will be included and integrated with the content of the course.

OTH 5104 Clinical Skills & Procedures
This course is an introduction to basic patient care skills as required by rehabilitation workers. It will offer an understanding of various bodily systems, conditions and, typical medical management and how they impact occupational performance. Concepts such as communication, training techniques, therapeutic use of self, disease processes, and safety will be included and integrated with the content of the course.

OTH 5105 Anatomy and Human Movement
This course provides an integrated, as well as theoretical and practical approach to studying anatomy and movement. As all functions are performed by specific structures, anatomical information provides clues about structure and explains function. Knowledge of the anatomy of the healthy human body will enable the student to understand important mechanisms of disease. This course applies information learned in gross anatomy to mechanical and physiological principles of movement. It includes analysis of body alignment, joint structure, and muscle action and their relationship to functional activities. Students will complete assessments of normal and abnormal alignment and movement and analyze their importance for life tasks. Concepts such as intervention plan, safety, human behavior, lifespan development, and psychology will be included and integrated with the content of the course.

OTH 5200 Occupational Performance in the Older Adult Population
This course is an introduction to occupational therapy with older adults. It focuses on occupational behavior, explores developmental theories, occupational therapy frames of reference, and applies it to physical and psycho-social conditions typically seen in older adults. Psychosocial factors influencing engagement in occupation will be integrated for the

development of client-centered, meaningful, occupation-based outcomes. Concepts such as theories, wellness, prevention, precautions and care coordination will be included and integrated with the content of the course. The course will incorporate evidence –based practice and apply knowledge to a variety of clinical and community settings.

OTH 5210 Skills Lab: Older Adult

In the skills lab students will gain hand-on experience working with older adult populations. Students will explore application of occupational therapy theory use in the process of evaluation and intervention, models of practice, and frames of references towards the conditions typically seen in the older adult. Concepts such as models of practice, interventions, strategies, driver rehabilitation, and dysphagia will be included and integrated with the content of the lab. The course will incorporate evidence–based practice and apply knowledge to a variety of clinical and community settings.

OTH 5201 Fieldwork I – Older Adult

This course provides opportunities for observation and participation in various aspects of the occupational therapy process during an older adult Level I fieldwork experience. Students will be able to observe evaluations and interventions performed on the older adult with a variety of diagnosis in medical or educational settings. The debriefing on the fieldwork will facilitate discussion around the potential for formulating specific research questions or proposals for program development that can be executed during the Doctoral Experiential Internship.

OTH 5202 Assessment & Screening II

This course provides an in-depth analysis of the occupational therapy assessment process over the lifespan. It focuses on standardized and occupation-based methods of gathering information about these developmental groups. Students will have the opportunity to develop their observation and analysis skills. Concepts such as interprofessional team, standardized testing, psychometric properties of tests, cultural factors, and intervention plans will be included and integrated with the content of the course.

OTH 5203 Brain, Behavior and Occupation

This foundational neuroscience course will present topics including histology of the ascending sensory pathways, descending motor pathways, cranial nerves: location, fibers course and function, vasculature of the brain, brainstem, and spinal cord, visual system, vestibular system, auditory system, cerebellum, basal ganglia, cerebral cortical structure and function, limbic system: learning and memory, and development and normal aging of the nervous system. In addition, each topic will have an applied component in which students will investigate the impact of these systems and structures on occupations. Concepts such as society, assessment tools, performance patterns, occupation-based interventions, and social determinants will be included and integrated with the content of the course.

OTH 5204 Scholarship and Evidence-Based Practice I

This course introduces students to evidence-based practice and knowledge development and how to create focused clinical questions, investigate and interpret research literature, and incorporate outcome-measures into practice. It is designed to foster professional writing skills as to become evidence –based practitioner in occupational therapy. Concepts such as theory development, evaluation, standardized testing, scholarly reports, and instructional design will be included and integrated with the content of the course.

OTH 5205 Occupations in Practice Through the Lifespan

This course provides an in-depth analysis of the therapeutic benefits of occupations, in all areas of ADL, IADL, Health Management, Rest and Sleep, Education, Work, Play, and Social Participation. Students will analyze and apply occupation – based media as they relate to client – centered intervention. Occupation-based activity analysis techniques are utilized to allow student to recognize the possible influences of activity demands, social, cultural, personal and temporal contexts on occupational performance. Students will learn how to implement the teaching-

learning process as they train others to engage in occupations. Students will develop resources, teaching skills, observation techniques, and the therapeutic use of self. Emphasis will be placed on perceiving relationships between developmental stages and modifications in the individual's occupations, along with the impact of culture on development. Concepts such as diversity, occupation-based activities, clinical reasoning, teaching-learning process, and effective communication will be included and integrated with the content of the course.

OTH 5206 Introduction to Doctoral Studies
This course will inspire the student's growth in doctoral level thinking and professional curiosity. Providing an overview of the culminating project, students are prepared to proactively explore areas of interest throughout the occupational therapy program as potential topics for the experiential internship and capstone. Additionally, students gain dialectical and critical analysis skills relating to occupational therapy history, literature, and theory in application to the profession today and in the future. Students will be in class 30 hours for didactic instruction and seminar-style discussion. The course culminates with a critical analysis paper exploring a potential capstone topic. Concepts such as quantitative and quantitative research, grants, instructional design, and synthesis of data will be included and integrated with the content of the course.

OTH 5300Occupational Performance in the Adult Population
This course is an introduction to occupational therapy with adults. It focuses on occupational behavior, explore developmental theories, occupational therapy frames of reference, and apply it to physical and psycho-social conditions typically seen in adults. Psychosocial factors influencing engagement in occupation will be integrated for the development of client-centered, meaningful, occupation-based outcomes. Concepts such as scientific evidence, clinical reasoning, reassessment, referring clients, community resources, discharge planning will be included and integrated with the content of the course. The course will incorporate evidence –based practice and apply knowledge to a variety of clinical and community settings.

OTH 5310 Skills Lab: Adult
In the skills lab, students gain hand-on experiences with occupational performance in adults. Students will explore application of occupational therapy theory use in the process of evaluation and intervention, models of practice, and frames of references towards the conditions typically seen in the older adult. Concepts such as intervention strategies, technique training, evaluation, interprofessional collaboration, care coordination will be included and integrated with the content of the lab. The course will incorporate evidence –based practice and apply knowledge to a variety of clinical and community settings.

OTH 5301 Fieldwork I - Adults
This course provides opportunities for observation and participation in various aspects of the occupational therapy process during an adult Level I fieldwork experience. Students will be able to observe evaluations and interventions performed on adults with a variety of diagnoses in a variety of settings. The debriefing on the fieldwork will facilitate discussion around the potential for formulating specific research questions or proposals for program development that can be executed during the Doctoral Experiential Internship.

OTH 5302 Scholarship and Evidence-Based Practice II
This course will focus building capabilities in assessing and systematically reviewing evidence, utilizing a critical appraisal process in investigating a clinical question, and developing a research proposal. Students will compare forms of evidence with specific reference to systematic reviews versus clinical practice guidelines. The doctoral student can use course assignments to explore potential topics for the culminating capstone project.
Concepts such as client evaluation, standardized test interpretation, data analysis, publication, and proposal design will be included and integrated with the content of the course.

OTH 5303 Preparatory Methods I
This course focuses on methods and techniques used by the occupational therapist to prepare the client for function/occupational performance such as the use of physical agent modalities, wound care, managing edema, and tissue

remodeling / scar management. Concepts such as interventions, safety, assistive technology, prosthetic devices, preparatory methods, and precautions will be included and integrated with the content of the course.

OTH 5304 Assistive Technology
This course focuses on assistive technology, adaptive equipment and environmental modifications used by occupational therapist to achieve optimal occupational performance. It includes visits to vendors and community settings to explore how assistive technology is used for different populations, as well as to determine what is available to clients. Students will have the opportunity to design assistive equipment for a client. Concepts such as assistive technology, orthotic devices, program design, and technology in practice will be included and integrated with the content of the course.

OTH 5400 Occupational Performance in the Child and Adolescent Populations
This course is an introduction to occupational therapy with children and adolescents. It focuses on occupational behavior, explores developmental theories, occupational therapy frames of reference, and applies it to physical and psycho-social conditions typically seen in children and adolescents. Psychosocial factors influencing engagement in occupation will be integrated for the development of client-centered, meaningful, occupation-based outcomes. The course will incorporate evidence–based practice and apply knowledge to a variety of clinical and community settings. Concepts such as scientific evidence, consultative process, collaboration, and feeding will be included and integrated with the content of the course.

OTH 5410 Skills Lab: Children and Adolescents
In the skills lab, students gain hands-on experiences with occupational performance in children and adolescents. Students will explore application of occupational therapy theory use in the process of evaluation and intervention, models of practice, and frames of references towards the conditions typically seen in the children and adolescents. Clinical concepts such as case reasoning, intervention strategies, specialist referral, care coordination, technique training
will be included in the course. The course will incorporate evidence –based practice and apply knowledge to a variety of clinical and community settings.

OTH 5401 Fieldwork I – Children and Adolescents
This course provides opportunities for observation and participation in various aspects of the occupational therapy process during a children and adolescents Level I fieldwork experience. Students will be able to observe evaluations and interventions performed on adults with a variety of diagnosis in a variety of settings. The debriefing on the fieldwork will facilitate discussion around the potential for formulating specific research questions or proposals for program development that can be executed during the Doctoral Experiential Internship.

OTH 5402 Doctoral Fieldwork II
This course will emphasize information that has been covered in the occupational therapy curriculum to prepare the student for Fieldwork Level II: Therapeutic use of self; applying theoretical knowledge and evidence-based principles to the clinical situation; time management; communication and interactions; supervisory relationships; teamwork; documentation; and meeting the Fieldwork II requirements. Concepts such as direct interventions, technology in practice, intra-professional collaboration, and reimbursement systems will be included and integrated with the content of the course.

OTH5403 Preparatory Methods II
This course focuses on methods and techniques used by the occupational therapist to prepare the client for function/occupational performance: Physical agent modalities and splinting. Concepts such as assistive technology, superficial thermal agents, and advocacy will be included and integrated with the content of the course.

OTH 5404 Occupational Wellness
This course examines the relationship of occupation to health, well-being, participation; critical thinking about lifestyle factors influencing occupational engagement and wellness in occupational therapy practice. Concepts such as public health, consultative process, teaching-learning process, and community resources will be included and integrated with the content of the course.

OTH 5405 Leadership and Advancement in Practice

This course will cover information on how to provide effective occupational services: the role of the occupational therapy manager; running a business/department/program; leadership; maintain standards; use evidence; understand policy; and prepare next-generation leaders. It will foster professional development in leadership, management, and advocacy. The course prepares students for the lifelong task of professional growth as a leader. Students gain an understanding of how to carry out the role of an occupational therapy manager, start and run a private practice or business, follow professional regulations and policy, utilize evidence, acquire grant funding, and become future leaders. Concepts such as policy issues, service delivery models, regulations, leadership skills, and ethics will be included and integrated with the content of the course.

OTH 5500 Preparation for Doctoral Professional Practice

This course will integrate knowledge from courses such as Leadership and Advancement in Practice, Introduction to Fieldwork, and Occupational Performances and apply it to the fieldwork experiences. Using a "mock" format and case studies, students will have the opportunity to interview, apply appropriate screening and evaluations, develop occupation-based intervention, and discharge plans. Students will also have to apply knowledge about payment systems in different settings; admission criteria; documentation requirements, and billing. The course will also revisit Models and Theoretical Frameworks that support fieldwork education. This process will be applied to all three lifespan categories as depicted by the Occupational Performance courses: The Older Adult, the Adult; and the Child and Adolescent. Concepts such as assessment tools, occupational profile, therapeutic use of self, occupation-based interventions, and discharge will be included and integrated with the content of the course.

OTH 5501 Fieldwork II-A

This course provides fieldwork experience under the supervision of a license occupational therapist. Students' participation includes in-depth experience in delivering occupational therapy services to clients including evaluation and intervention. Students will have the opportunity to practice in a variety of clinical or community-based settings. During this period, the students are expected to assume increasing responsibilities related to client care. The fieldwork experience is designed to develop clinical reasoning, professionalism and clinical competency. It is also intended to develop professional skills consistent with the profession's ethics and standards. It involves applying previously learned knowledge to providing occupational therapy to children or adults in the community. Students will gain experience in OT evaluation and treatment with individuals with various disorders and performance deficits.

OTH 5600 Capstone Project I

The Doctoral Capstone, consisting of the Capstone Project and Experience, is individually tailored by the student and capstone coordinator to synthesize advanced occupational therapy knowledge and grow professional skills in a focused area of interest. In this course, the student will both choose a topic area and determine the mode of implementation from one of the following areas: specialized practice, program development, education, leadership, administration, or advocacy. Each student will prepare a brief description of the proposed project addressing purpose and feasibility which will then be reviewed by the faculty for approval. Upon faculty approval, the student will complete an extensive literature review which will serve as the first part of the culminating project proposal.

OTH5601 Fieldwork II-B

This course provides fieldwork experience under the supervision of a license occupational therapist. Students' participation includes in-depth experience in delivering occupational therapy services to clients including evaluation and intervention. Students will have the opportunity to practice in a variety of clinical or community-based settings. During this period, the students are expected to assume increasing responsibilities related to client care. The fieldwork experience is designed to develop clinical reasoning, professionalism and clinical competency. It is also intended to develop professional skills consistent with the profession's ethics and standards. It involves applying previously learned knowledge to providing occupational therapy to children or adults in the community. Students will gain experience in OT evaluation and treatment with individuals with various disorders and performance deficits

OTH 5700 Capstone Project II
This course will build upon work from the first capstone course OTH 5600 Capstone Project I. The student will continue work on the project proposal utilizing one of the following modes for implementation: specialized practice, program development, education, leadership, administration, and advocacy.

OTH 5701 Capstone Experience I
The Capstone Experience internship provides students with the opportunity to synthesize advanced occupational therapy knowledge, utilize evidence-based knowledge, and grow professionally in a focused area of interest. The approved proposal from the Capstone Project II course serves as the blueprint for learning experiences in the internship. Students will be focused on one of the following areas: specialized practice, program development, education, leadership, administration, or advocacy. Students will be in a variety of settings depending on their capstone topic which may include: clinical or community-based occupational therapy settings, educational institutions, state or national occupational therapy organizations, or administrative settings. The Capstone Experience internship will be mentored by a full-time faculty member, adjunct faculty/consultant, or a qualified person at the site where the internship will be completed.

OTH 5800 Capstone Experience II
The Capstone Experience internship provides students with the opportunity to synthesize advanced occupational therapy knowledge, utilize evidence-based knowledge, and grow professionally in a focused area of interest. The approved proposal from the Capstone Project II course serves as the blueprint for learning experiences in the internship. Students will be focused on one of the following areas: specialized practice, program development, education, leadership, administration, or advocacy. Students will be in a variety of settings depending on their capstone topic which may include: clinical or community-based occupational therapy settings, educational institutions, state or national occupational therapy organizations, or administrative settings. The Capstone Experience internship will be mentored by a full-time faculty member, adjunct faculty/consultant, or a qualified person at the site where the internship will be completed.

OTH 5801 Capstone Experience III
The course involves the student preparing a scholarly write up of the capstone implementation and outcomes from the Doctoral Experiential Internship OTH 5701 and 5800. The manuscript will demonstrate the doctoral student's ability to contribute to occupational therapy's knowledge base and demonstrate skills as a scholar and leader. The manuscript will build upon materials from the Preparation for Capstone I and II courses. The manuscript will include a critical analysis of the literature, clearly identified outcomes of capstone implementation, professional reflections on learning, and recommendations for future development. In addition to the manuscript, students will create either a publishable manuscript or poster or presentation suitable for submission to a professional conference.

Clinical Education

Health Requirements

Please note that the University requires its students to be fully vaccinated against COVID-19. Students attending a program with a clinical training component are subject to this policy. Medical and religious exemptions are not available for students in a University clinical training program due to the requirements of external clinical sites and other circumstances which would place an undue burden on the University to provide the accommodation. You should bear this in mind when applying to the program. The University will not refund any fees or other payments if you are unable to enroll or otherwise complete the program.

OTD Admissions Requirements

Candidates for the Occupational Therapy Doctorate program must have completed a bachelor's degree from an accredited college or university and have all prerequisite coursework outlined below. The last 60 credits of undergraduate coursework must meet a minimum 3.0 GPA.

Applicants applying to the Occupational Therapy Doctorate program need to apply through the **Occupational Therapy Centralized Application Service** (OTCAS). The application portal will have specific admissions requirements including: application portal will have specific admissions requirements including: application portal will have specific admissions requirements including: application portal will have specific admissions requirements including:

- Official transcripts from all colleges and universities attended within the last 10 years.
- Résumé
- 2 letters of recommendation: at least 1 from a licensed occupational therapist; 1 letter may be from a faculty member/advisor. Letters from friends or family members will not be accepted.
- Personal statement demonstrating a commitment to contribute to and complete the program
- Verification of 40+ volunteer or observation hours from OT setting(s) of choice.
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)
- *NACES course-by-course evaluation (for degrees completed outside of the US and English-speaking Canada)*
- *Minimum TOEFL score on tests taken within the last two years: 100 (internet-based test)*
- *Minimum IELTS score on tests taken within the last two years: 7*

Prerequisite Coursework

- Two courses in the humanities or social sciences (anthropology, philosophy, religion, ethics, cultural studies, group dynamics) (3 credits each)
- One course in statistics (3 credits)
- One course in human anatomy, plus lab (3 credits)
- One course in physiology, plus lab (3 credits)
- One course in human development or lifespan (3 credits)
- One course in abnormal or behavioral psychology (3 credits)

Applicants must have obtained a cumulative 3.0 grade point average (GPA) in program prerequisite courses (from accredited universities) within the last 10 years. Applications may be submitted during enrollment in an undergraduate degree program or during completion of prerequisite coursework. The last 60 credits of undergraduate coursework must meet a minimum 3.0 GPA.

MS in Physician Assistant Studies

Physician Assistants (PAs) are medical professionals who diagnose disease, develop and implement treatment plans, perform surgical procedures, prescribe medications, and often serve as a patient's principal healthcare provider. PAs complete thousands of hours of medical training to become versatile and collaborative clinicians. They practice nationwide, improving patient access to high quality healthcare in medical and surgical settings.

YU's 86-credit M.S. in Physician Assistant Studies is an evidence-based, medical science program that prepares future Physician Assistants for work in a variety of clinical settings. In the first-year didactic curriculum, students develop the knowledge and skills to confidently and competently participate in and provide patient-centered care on interdisciplinary healthcare teams. Didactic lectures are complemented by laboratories in which students participate in simulated patient care experiences. In the second-year clinical curriculum, students apply the skills and concepts from year one in a range of clinical settings. Each student rotates through seven five-week core clinical disciplines and three five-week electives at clinical sites throughout the New York area. Core rotations include family medicine, primary care, internal medicine, surgery, emergency medicine, women's health, pediatrics, and behavioral health.

Clinical electives cover a wide variety of medical and surgical specialties. The PA program fosters high ethical standards, dedication, cultural competence, communication skills, interpersonal skills, and professionalism as well as the technical skills and medical knowledge required for clinical excellence and leadership in the field.

Accreditation Status

At its **March 2024** meeting, the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA) placed the **Yeshiva University Physician Assistant Program** sponsored by **Yeshiva University** on **Accreditation-Probation** status until its next review in **March 2026**.

Probation accreditation is a temporary accreditation status initially of not less than two years. However, that period may be extended by the ARC-PA for up to an additional two years if the ARC-PA finds that the program is making substantial progress toward meeting all applicable standards but requires additional time to come into full compliance. Probation accreditation status is granted, at the sole discretion of the ARC-PA, when a program holding an accreditation status of Accreditation - Provisional or Accreditation - Continued does not, in the judgment of the ARC-PA, meet the *Standards* or when the capability of the program to provide an acceptable educational experience for its students is threatened.

Once placed on probation, a program that fails to comply with accreditation requirements in a timely manner, as specified by the ARC-PA, may be scheduled for a focused site visit and is subject to having its accreditation withdrawn.

The Yeshiva University Physician Assistant Program is scheduled for a focused site visit to occur in advance of the **March 2025** commission meeting. This visit will evaluate the PA Program and institutional progress in addressing specific citations identified during the course of the most recent commission review of the PA Program. Failure of the PA Program and institution to demonstrate significant progress in addressing these citations is likely to result in the withdrawal of accreditation.

Specific questions regarding the Program and its plans should be directed to the Program Director and/or the appropriate institutional official(s).

The program's accreditation history can be viewed on the ARC-PA website at **https://www.arc-pa.org/accreditation-history-yeshiva-university/**.

Program Director, Faculty, & Staff

- Lorraine Cashin, DMSc | Assistant Dean and Program Director | Clinical Professor

- Brian Baker, M.D., J.D. | Assistant Program Director and Clinical Associate Professor
- Charles Braun, MS, PA-C | Director of Didactic Education and Clinical Assistant Professor
- Lorraine Perrone MS, PA-C | Clinical Education Coordinator and Clinical Assistant Professor
- Sondra Middleton, MHS, PA-C, Faculty, Clinical Associate Professor
- Margaret Montoya, MS, PA-C, Faculty, Clinical Assistant Professor
- Margaret Ewen, MS, PA-C |Faculty | Clinical Assistant Professor
- Chana Ladaew, MS, PA-C |Faculty | Clinical Assistant Professor
- Christopher Rodriguez | Data Manager
- Gladys Davis | Program Manager
- Nancy Guzman | Program Manager

Curriculum and Degree Requirements

YU's 86-credit M.S. in Physician Assistant Studies is a seven semester, evidence-based, medical science program that prepares future PAs to work in a variety of clinical settings.

FULL-TIME - SAMPLE COURSE SEQUENCE:		
Semester 1	**Semester 2**	**Semester 3**
• Human Anatomy (4 cr.) • Foundations in Medicine I (2 cr.) • Pharmacology I (3 cr.) • Patient Evaluation I (2 cr.) • Diagnostic Methods I (1 cr.) • Clinical Medicine I (5 cr.) • Professionalism, Policy and Practice I (1 cr.)	• Foundations in Medicine II (2 cr.) • Patient Evaluation II (2 cr.) • Pharmacology II (3 cr.) • Diagnostic Methods II (1 cr.) • Clinical Medicine II (5 cr.) • Psychosocial Medicine (2 cr.) • Research Methods I (1 cr.) • Professionalism, Policy and Practice II (1 cr.) • Clinical Skills & Procedures I (1 cr.)	• Clinical Medicine III (5 cr.) • Research Methods II (1 cr.) • Primary Care, Preventive Med, Public Health (4 cr.) • Professionalism, Policy and Practice III (1 cr.) • Clinical Skills & Procedures II (1 cr.)
Semester 4	**Semester 5**	**Semester 6**
● Internal Medicine (3 cr.) ● Surgery (3 cr.) ● Pediatrics (3 cr.) ● Colloquium I (1 cr.)	● Family Medicine (3 cr.) ● Emergency Medicine (3 cr.) ● Women's Health (3 cr.) ● Colloquium II (1cr.)	● Behavioral Health (3 cr.) ● Primary Care (3 cr.) ● Clinical Elective I (3 cr.)
Semester 7		

- Clinical Elective II (3 cr.)
- Bridge to Practice (1 cr.)
- PANCE preparation (3 cr.)
- Capstone (2 cr.)

Course Descriptions

PAS 5001A Foundations in Medicine I: This is the first in a series of courses designed to develop an understanding of normal physiology, genetics and pathologic concepts of diseases in organ systems. The physiology component covers normal physiology for human organ systems. The genetics component introduces the concepts of patterns of inheritance, genetic abnormalities and molecular mechanisms of health and disease. The pathology component explores the etiology of organic and systemic disease.

PAS 5001B Foundations in Medicine II: This is the second in a series of courses designed to continue the study of normal physiology, genetics, and pathologic concepts of diseases in organ systems. The physiology component covers normal physiology for human organ systems. The genetics component introduces the concepts of patterns of inheritance, genetic abnormalities and molecular mechanisms of health and disease. The pathology component explores the etiology of organic and systemic disease.

PAS 5000 Human Anatomy: Using an organ systems-based approach, this course is designed to develop an understanding of the structure and function of the human body. Lectures are complemented by laboratory sessions that utilize state-of-the-art computer-based learning with virtual imaging of cadavers. Upon completion of this course, students will be able to identify normal anatomic structures, recognize abnormal anatomy, and determine the clinical implications of pathologic anatomy.

PAS 5003A Patient Evaluation I: This is the first in a series of courses designed to develop the knowledge and skills required to obtain and record the complete medical history and perform the physical exam. A focus is placed on development of proper techniques utilized in the acquisition of an accurate, focused, and comprehensive historical and physical examination. Students learn to utilize accurate medical terminology in the documentation of historical and physical exam findings. Via formal lectures and laboratories, this course also provides an overview of the medical record as well as fosters the development of writing and organizational skills used in medical documentation. Additionally, it develops student oral presentation skills that will be utilized in clinical practice. Skills will be developed through formal lectures, structured laboratory exercises and supervised community-based clinical practice experiences.

PAS 5003B Patient Evaluation II: This second in a series of courses designed to continue the development of the knowledge and skills required to obtain and record the complete medical history and perform the physical exam. A focus is placed on development of proper techniques utilized in the acquisition of an accurate, focused, and comprehensive historical and physical examination. Students learn to utilize accurate medical terminology in the documentation of historical and physical exam findings. Via formal lectures and laboratories, this course also provides an overview of the medical record as well as emphasizes the development of writing and organizational skills used in medical documentation. Additionally, it develops student oral presentation skills that will be utilized in clinical practice. Skills will be developed through formal lectures, structured laboratory exercises and supervised community-based clinical practice experiences.

PAS 5006A Diagnostic Methods I: This is the first in a series of courses designed to develop a functional understanding of the appropriate uses and interpretations of clinical diagnostic laboratory and radiographic testing. Students learn to select, interpret and evaluate clinical laboratory, imaging and other diagnostic tests used for diagnosing and managing patients' needs. Students learn to create comprehensive and thoughtful differential

diagnoses based on diagnostic findings. Skills will be developed through formal lecture as well as structured laboratory exercises.

PAS 5006B Diagnostic Methods II: This is the second in a series of courses designed to continue the development of the functional understanding of the appropriate uses and interpretations of clinical diagnostic laboratory and radiographic testing. Students learn to select, interpret and evaluate clinical laboratory, imaging and other diagnostic tests used for diagnosing and managing patients' needs. Students learn to create comprehensive and thoughtful differential diagnoses based on diagnostic findings. Skills will be developed through formal lecture as well as structured laboratory exercises.

PAS 5004A Clinical Medicine I: This is the first in a three-part series of courses designed to provide an intensive organ-based systematic study of human diseases and disorders that occur through the lifespan. Each organ system disease or disorder covered will include a study of epidemiology, anatomy, pathophysiology, clinical manifestations, diagnostic tool selection and interpretation, differential diagnosis development, therapeutic management, prognosis, prevention, patient education, and patient referral. Instruction in the diagnosis and management of emergent and surgical disease states will also be featured. Chronic diseases rehabilitative and palliative treatment will also be explored. This course will provide students with an opportunity to synthesize and apply didactic content via clinical problem-solving and simulation laboratories. Clinical problem-solving laboratories provide a deeper exploration of lecture topics and repeated exposure to important concepts and multi-systemic diseases. Simulation training provides the student with the opportunity to practice patient assessment and management skills in a high-stress, low-risk environment. Bridging the gap between didactic coursework and "real-life" experiences, patient care simulations do not compromise patient safety if the student makes an error. Simulation training prepares the student for dynamic future patient care experiences. These laboratories will utilize manikins and/or standardized patients to demonstrate disease state clinical manifestations and provide students with opportunities to develop skills in patient interviewing, physical examination, diagnostic evaluation, assessment and therapeutic management.

PAS 5004B Clinical Medicine II: This is the second in a three-part series of courses designed to provide an intensive organ-based systematic study of human diseases and disorders that occur through the lifespan. Each organ system disease or disorder covered will include a study of epidemiology, anatomy, pathophysiology, clinical manifestations, diagnostic tool selection and interpretation, differential diagnosis development, therapeutic management, prognosis, prevention, patient education, and patient referral. Instruction in the diagnosis and management of emergent and surgical disease states will also be featured. Chronic diseases rehabilitative and palliative treatment will also be explored. This course will provide students with an opportunity to synthesize and apply didactic content via clinical problem-solving and simulation laboratories. Clinical problem-solving laboratories provide a deeper exploration of lecture topics and repeated exposure to important concepts and multi-systemic diseases. Simulation training provides the student with the opportunity to practice patient assessment and management skills in a high-stress, low-risk environment. Bridging the gap between didactic coursework and "real-life" experiences, patient care simulations do not compromise patient safety if the student makes an error. Simulation training prepares the student for dynamic future patient care experiences. These laboratories will utilize manikins and/or standardized patients to demonstrate disease state clinical manifestations and provide students with opportunities to develop skills in patient interviewing, physical examination, diagnostic evaluation, assessment and therapeutic management.

PAS 5004C Clinical Medicine III: This is the third in a three-part series of courses designed to provide an intensive organ-based systematic study of human diseases and disorders that occur through the lifespan. Each organ system disease or disorder covered will include a study of epidemiology, anatomy, pathophysiology, clinical manifestations, diagnostic tool selection and interpretation, differential diagnosis development, therapeutic management, prognosis, prevention, patient education, and patient referral. Instruction in the diagnosis and management of emergent and surgical disease states will also be featured. Chronic diseases rehabilitative and palliative treatment will also be explored. This course will provide students with an opportunity to synthesize and apply didactic content via clinical problem-solving and simulation laboratories. Clinical problem-solving laboratories provide a deeper exploration of lecture topics and repeated exposure to important concepts and multi-systemic diseases. Simulation training provides the student with the opportunity to practice patient assessment and management skills in a high-stress, low-risk environment. Bridging the gap between didactic coursework and "real-life" experiences, patient

care simulations do not compromise patient safety if the student makes an error. Simulation training prepares the student for dynamic future patient care experiences. These laboratories will utilize manikins and/or standardized patients to demonstrate disease state clinical manifestations and provide students with opportunities to develop skills in patient interviewing, physical examination, diagnostic evaluation, assessment and therapeutic management.

PAS 5002A Pharmacology I: This the first in a series of courses designed to develop skills related to the principles of pharmacology as they pertain to therapeutic agents: prescription and non-prescription. Discussion will include the principal mechanisms of action of the major classes of therapeutic agents, understanding of pharmacodynamics, use indications, side effects, interactions, contraindications, and toxicities.

PAS 5002B Pharmacology II: This is the second in a series of courses designed to continue the development of skills related to the principles of pharmacology as they pertain to therapeutic agents: prescription and non-prescription. Discussion will include the principal mechanisms of action of the major classes of therapeutic agents, understanding of pharmacodynamics, use indications, side effects, interactions, contraindications, and toxicities.

PAS 5009 Psychosocial Medicine: This course is designed to develop skills in the area of patient and family communication, patient counseling and education. Students will study cultural diversity and how it influences all aspects of medical practice and patient care. It educates students as to how both patients'/providers' culturally informed beliefs/values can impact communication, decision making, compliance, and health outcomes. The course also instructs students to provide medical care to patients with consideration of ethnicity/race, gender identity, religion, human sexuality, substance abuse, disability, violence prevention, reaction to illness and end of life issues. Communication and counseling skills will be developed in laboratory sessions.

PAS 5005A Professionalism, Policy and Practice I: This is the first in a series of courses designed to aid the student in the transition into the medical profession and serves as an introduction to professional practice issues. Areas of discussion include history of the physician assistant profession, professional integrity and conduct, the healthcare team and interprofessional practice, patient centered care, professional organizations, licensing and credentialing, malpractice, health care delivery systems and policy, and use of technology in the practice of medicine. It will include instruction in patient safety, quality improvement, prevention of medical errors and risk management. This course will also cover medical ethics and the application of medical ethics theories and principles to clinical practice and clinical decision making.

PAS 5005B Professionalism, Policy and Practice II: This is the second in a series of courses designed to continue to aid the student in the transition into the medical profession and serves as an introduction to professional practice issues. Areas of discussion include history of the physician assistant profession, professional integrity and conduct, the healthcare team and interprofessional practice, patient centered care, professional organizations, licensing and credentialing, malpractice, health care delivery systems and policy, and use of technology in the practice of medicine.
It will include instruction in patient safety, quality improvement, prevention of medical errors and risk management. This course will also cover medical ethics and the application of medical ethics theories and principles to clinical practice and clinical decision making.

PAS 5005C Professionalism, Policy and Practice III: This is the third in a series of courses designed to continue to aid the student in the transition into the medical profession and serves as an introduction to professional practice issues. Areas of discussion include history of the physician assistant profession, professional integrity and conduct, the healthcare team and interprofessional practice, patient centered care, professional organizations, licensing and credentialing, malpractice, health care delivery systems and policy, coding and billing, documentation of care, and use of technology in the practice of medicine. It will include instruction in patient safety, quality improvement, prevention of medical errors and risk management. This course will also cover medical ethics and the application of medical ethics theories and principles to clinical practice and clinical decision making.

PAS 5008A Research Methods I: This is the first in a series of courses that emphasizes the importance of evidence based medical practice and the core concept of life-long learning. This course educates students on the usefulness and availability of medical literature, references, and databases. This course will teach students to successfully

search, interpret, and evaluate medical literature and research. It will teach students to effectively develop and find answers to clinical and research questions using medical literature and then to write effectively. This course will concentrate on writing mechanics as well as referencing. This course will support student development of viable capstone research questions and will develop the critical thinking skills needed to evaluate new medical findings.

PAS 5008B Research Methods II: This is the second in a series of courses that emphasizes the importance of evidence based medical practice. This course continues to educate students on the usefulness and availability of medical literature, references, and databases. This course will continue to educate students on how to successfully search, interpret, and evaluate medical literature and research. It will teach students to effectively develop and find answers to clinical and research questions using medical literature and to write effectively. This course will concentrate on writing mechanics as well as referencing. This course will support student development of viable capstone research project outline and will develop the critical thinking skills needed to evaluate new medical findings.

PAS 5010 Primary Care, Preventive Medicine and Public Health: This course will focus on the detection and application of public health/preventive measures and treatment of health risk behaviors. Primary instruction will include public health theories, a study of the public health system, and the role of clinicians in the prevention of disease and maintenance of population health. The course also highlights concepts of public health including disease surveillance, reporting and intervention, and patient advocacy. Emphasis will be placed on disease processes and states that are common to primary care practice.

PAS 5007A Clinical Skills and Procedures I: This is the first in a series of courses designed to instruct the student in the common technical and procedural skills needed for clinical practice. Students will be instructed on standard precautions, proper procedural techniques utilized in the performance of common procedures including, but not limited to, venipuncture, peripheral iv placement, arterial blood gases, suturing, lumbar punctures, splinting/casting, gowning and gloving, genitourinary catheterizations, and injections. Students will be instructed on safe practice, blood and body fluid exposures risks and subsequent management. Students will obtain skills necessary for clinical practice via both lecture and hands-on practice in organized laboratories. Formal lectures as well as hands-on procedural training will provide the technical skills necessary to practice medicine and surgery with confidence and competence.

PAS 5007B Clinical Skills and Procedures II: This is the second in a series of courses designed to instruct the student in the common technical and procedural skills needed for clinical practice. Students will be instructed on standard precautions, proper procedural techniques utilized in the performance of common procedures including, but not limited to, venipuncture, peripheral iv placement, arterial blood gases, suturing, lumbar punctures, splinting/casting, gowning and gloving, genitourinary catheterizations, and injections. Students will be instructed on safe practice, blood and body fluid exposures risks and subsequent management. Students will obtain skills necessary for clinical practice via both lecture and hands-on practice in organized laboratories. Formal lectures as well as hands-on procedural training will provide the technical skills necessary to practice medicine and surgery with confidence and competence.

PAS 6001 Internal Medicine Clerkship: The five-week inpatient clerkship in internal medicine provides an opportunity to apply the principles of clinical medicine learned in the didactic curriculum. Students are assigned to a team, and through supervised, ongoing patient contact, they are exposed to patients with a wide variety of acute and chronic medical problems. Emphasis is placed on data gathering, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic skills, follow up care and the provision of health education and counseling.

PAS 6002 Surgery Clerkship: The five-week inpatient clerkship in surgery provides an opportunity to apply the principles learned in the preclinical curriculum. The rotation includes supervised experiences in inpatient and ambulatory surgical care settings with exposure to pre-operative, intraoperative, and postoperative care. Emphasis is placed on data gathering, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic skills, appropriate triage and referral, follow up care and the provision of health education and counseling.

PAS 6003 Pediatrics Clerkship: This five-week clerkship provides the student with practical clinical experience in working with the pediatric patient. This preceptorship is intended to augment and develop directed data collection and patient management skills emphasizing a wide range of primary care pediatric problems. It will also stress those cognitive and affective skills that will enable the student to recognize normal and assess abnormal findings. The student will augment such skills as counseling the parent as to normal growth and development, anticipatory guidance, feeding, immunizations, etc., and will become familiar with the indications, limitations, and methodology of ambulatory diagnostic procedures and therapeutics. Further, he/she will gain an appreciation for practice management and the role a PA may play in a pediatric practice setting.

PAS 6004 Family Medicine Clerkship: This five-week clerkship course in family medicine provides the student with practical clinical experience in working with the ambulatory medical patient. This preceptorship is intended to augment and develop directed data collection skills emphasizing a wide range of primary care medical problems. This rotation focuses on exposing the student to preventive care and chronic care. Emphasis is placed on data gathering, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic skills, follow up care and referral, and the provision of health education and counseling. Students learn the value of an interdisciplinary approach to primary care. Further, he or she will gain an appreciation for practice management and the role a PA may play in a community health and learn the value of an interdisciplinary approach to primary care/community health.

PAS 6008 Primary Care Clerkship: This five-week clerkship in primary care/community health provides the student with practical clinical experience in working with chronic care and/or ambulatory medical patients. This preceptorship is intended to augment and develop directed data collection skills emphasizing a wide range of primary care medical problems. This rotation focuses on exposing the student to preventive care, rehabilitation, chronic care and ambulatory clinics. Emphasis is placed on data gathering, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic skills, follow up care and referral, and the provision of health education and counseling. Students learn the value of an interdisciplinary approach to primary care. Further, he or she will gain an appreciation for practice management and the role a PA may play in a community health and learn the value of an interdisciplinary approach to primary care/community health.

PAS 6005 Emergency Medicine Clerkship: The five-week clerkship in emergency medicine provides an opportunity to apply the principles learned in the didactic year curriculum. Through emergency department based supervised patient contact the student will gain practical clinical experience in performing the directed history and physical, triage, as well as assessment and management of acute medical and surgical emergencies. The student will learn the value of an interdisciplinary approach to patient centered care and gain an appreciation for the role a PA may play in an emergency medicine setting.

PAS 6006 Women's Health Clerkship: The five-week clerkship course in women's health provides an opportunity to apply the principles learned in the didactic curriculum. Students are assigned to a women's health patient care team in which they are exposed to women's health issues including prenatal and gynecologic care. Emphasis is placed on data gathering, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic skills, follow up care and the provision of health education and counseling. The student will learn the value of an interdisciplinary approach to patient centered care and gain an appreciation for the role a PA may play in a women's health setting.

PAS 6007 Behavioral Health Clerkship: The five-week clerkship course in behavioral and mental health provides an opportunity to apply general principles of psychiatry learned in the didactic year curriculum. The student is provided with practical clinical experience in identifying, evaluating, managing and referring patients presenting with common and/or emergent psychiatric problems. Students develop skills in performing mental status examinations and gathering a thorough psychiatric database. The student is exposed to management regimens and made aware of community-based mental health referral facilities that may be utilized in the treatment of the psychiatric patient.

PAS 6009 Clinical Elective Clerkship I: This five-week rotation provides the student with the opportunity to explore an area of medical or surgical practice beyond basic required rotations. Students are encouraged to choose an area of emerging importance in healthcare and PA practice, or a potential employment setting.

PAS 6010 Clinical Elective Clerkship II: This five-week rotation provides the student with the opportunity to explore an area of medical or surgical practice beyond basic required rotations. Students are encouraged to choose an area of emerging importance in healthcare and PA practice, or a potential employment setting.

PAS 6011 Clinical Colloquium I: In this colloquium, students will draw on their clinical clerkship(s) as well as material previously learned in the curriculum to produce and deliver a comprehensive patient case presentation to PA students and faculty.

PAS 6012 Clinical Colloquium II: In this colloquium, students will draw on their clinical clerkship(s) as well as material previously learned in the curriculum to produce and deliver a comprehensive patient case presentation to PA students and faculty.

PAS 6014 Bridge to Practice: In this course, students will draw on all material previously learned in the PA Studies curriculum to complete a summative evaluation of their competencies to enter clinical practice. The summative evaluation assesses the student's development of professional competencies including medical knowledge, clinical reasoning and problem-solving skills, interpersonal skills, communication skills, technical skills, teamwork skills, practice-based learning skills, and professionalism. The summative evaluation is comprised of the following: a written summative end-of-curriculum multiple-choice examination, an individual objective structured clinical examination (OSCE,) a team based OSCE, a virtual patient encounter, and a self-reflection/evaluation project. During the individual and team based OSCEs, the student will demonstrate the ability to competently communicate with patients, family members, and healthcare team members. The student will evaluate patients, create a differential diagnosis, perform indicated clinical procedures, and develop and implement a management plan. The student will demonstrate the ability to confidently and competently provide patient-centered health care.

PAS 6013 PANCE Preparation: In this seminar, students prepare for the Physician Assistant National Certification Examination (PANCE). Each student will synthesize material previously learned in the entire PA Studies curriculum, as well as study additional PANCE preparation resources in preparation for the PANCE.

PAS 6015 Capstone Project: The Capstone Project serves as the culminating experience for PA Students and must be completed prior to the awarding of the MS degree. Building upon prior clinical experiences, the PA program curriculum, and student interests, the Capstone Project will permit the student to gain greater insight into healthcare related issues such as medical conditions, specific therapies, diagnostic tests, clinical practice guidelines, health delivery systems, public health or patient education challenges through the delivery of a meta-analysis of current research or the completion of original research.

Clinical Education – Health Requirements

Please note that the University requires its students to be fully vaccinated against COVID-19. Students attending a program with a clinical training component are subject to this policy. Medical and religious exemptions are not available for students in a University clinical training program due to the requirements of external clinical sites and other circumstances which would place an undue burden on the University to provide the accommodation. You should bear this in mind when applying to the program. The University will not refund any fees or other payments if you are unable to enroll or otherwise complete the program.

Admissions Requirements

Candidates for the M.S. in Physician Assistant Studies must have completed a bachelor's degree from a regionally accredited college or university or equivalent, with a minimum overall GPA of 3.0 and a minimum GPA of 3.0 in all science courses as calculated by CASPA. GPAs are calculated utilizing ALL college level courses completed by the

applicant. In addition, candidates must have completed each prerequisite course, listed below, with a grade of B (3.0) or better, and an overall prerequisite GPA of 3.0 or better. Prerequisite courses must be taken within 10 years of the time of application. Candidates must also demonstrate the technical standards indicated below.

A CASPA application must be complete and verified to be evaluated by the PA program's admissions committee. The link to the CASPA application is https://caspa.liaisoncas.com/applicant-ux/#/login

Please note that the university requires its students to be fully vaccinated against COVID-19. Students attending a program with a clinical training component are subject to this policy. Medical and religious exemptions generally are not available for students in a university clinical training program due to the requirements of external clinical sites and other circumstances which would place an undue burden on the university to provide the accommodation. You should bear this in mind when applying to the program. The university will not refund any fees or other payments if you are unable to enroll or otherwise complete the program.

Application Requirements

The following must be received through CASPA:

- Official transcripts from all colleges and universities attended
- Three (3) professional references
  - One must be from a professor
  - One must be from an employer/supervisor
- Personal statement (CASPA personal statement)
- Student CV
- TOEFL or IELTS scores (for candidates whose bachelor's degrees were earned at a non-English-speaking institution)
  - Minimum TOEFL score on tests taken within the last two years: 100 (internet-based test)
  - Minimum IELTS score on tests taken within the last two years: 7

Admission to the PA program is very competitive. Only the most competitive applicants will be invited for an interview with the PA program's admissions committee. A successful interview is required for admission to the PA program.

For admissions-related questions, contact katzgrad@yu.edu.

Prerequisite Coursework

All prerequisite courses must be taken no more than 10 years prior to the time of application with a grade of B (3.0) or better in each course, and an overall prerequisite GPA of 3.0 or better. Two prerequisite courses may be outstanding at the time of application but must be completed prior to beginning the program if the applicant is accepted for admission.

- Two semesters of general chemistry with lab (or two higher-level chemistry courses with lab)
- Two semesters of general biology with lab (or two higher-level biology courses with lab)
- One semester of statistics (or biostatistics)
- One semester of microbiology
- One semester of human anatomy with a lab
- One semester of human physiology (at least three credits) (Anatomy and Physiology I and II cannot substitute for the human physiology requirement.)

Technical Standards

View the PA Program Technical Standards.

Student Selection

The program accepts applications on a rolling basis. Selection of students is a multi-step process. The process includes an initial review of the application to ensure it is complete and meets the minimum requirements. Students who meet the minimum requirements are eligible for an interview. Applications are scored and ranked by GPAs

and letters of recommendation by the program to determine the interview order on a rolling basis. Meeting the minimum academic requirements does not guarantee an interview.

Admission to the PA program is very competitive. Admission is based on an applicant's academic achievement and individual character traits. The admissions committee recognizes its responsibility to present candidates for PA certification that have the maturity, integrity, knowledge, fortitude and generosity, as well as communication and leadership skills, to function in a broad variety of clinical situations.

Applicants will receive preference for the following:

- Higher overall GPA, CASPA designated science course GPA, and prerequisite GPA (rated on a scale with higher GPAs awarded more points)
- Superior personal statement (reviewed for content, organization, and development)
- Superior letters of recommendation (holistic review; ranked accordingly)
- Demonstrated service to underrepresented populations
- Commitment to practicing in primary care and/or with underserved populations
- Demonstrated leadership positions/skills
- Life experience to include military service, travel and exposure to other countries/cultures, patient care experience/PA shadowing, overcoming adversity.

During the interview, applicants will be evaluated on the following: Critical thinking/decision-making skills, understanding the role of a physician assistant, communication skills, non-verbal skills, professional presentation, and teamwork, interpersonal skills, and leadership skills.

Highly competitive Yeshiva University undergraduates (minimum overall GPA of 3.5, and minimum GPA of 3.5 in CASPA designated science courses and prerequisite courses; grade of B or higher in the prerequisite courses; 7 of 8 prerequisite courses completed at the time of application) receive guaranteed early interviews regardless of their ranking during the rolling admissions process. An interview does not guarantee admission. No more than 10% of the maximum class size or 5 applicants, whichever is greater, will be considered for admission through priority interviews. Yeshiva University students who are not eligible for a priority review are still encouraged to apply and will be considered during the regular admission cycle.

Students who were admitted, deposited, and set to matriculate into the Fall 2024 semester will receive guaranteed early interviews for the Fall 2025 intake regardless of their ranking during the rolling admissions process. Applicants will not be required to reapply; however, if they have additional materials they wish to be reviewed (e.g., coursework, clinical experiences, etc.), they should email katzgrad@yu.edu.

Applicants selected for an interview will be notified by email. If the applicant accepts the interview invitation, an interview schedule and agenda will be emailed to the applicant.

Offers of interviews and acceptance into the PA program are made on a rolling basis. All acceptances are provisional based on successful completion of all requirements prior to matriculation in the program. Applicants offered a seat in the PA program will receive notification via email.

ADMISSION TO THE CURRENT COHORT
Acceptances to the PA Program are binding for the current cohort in which the student is accepted. There are no deferrals of acceptance.

Transfer Credit & Advanced Standing

Transfer credit, and advanced standing and placement, are not accepted. All students must complete all the didactic and clinical elements of the PA program.

MS in Speech-Language Pathology

The Katz School's M.S. in Speech-Language Pathology, based in New York City, is one of the few SLP programs in the country specializing in the medical aspects of speech-language pathology. Our master's program takes a multidisciplinary approach to diagnosing and treating speech, language, swallowing and communication cases across the lifespan. With three options to pursue your studies—full-time on-campus, full-time online or part-time online—you can choose the program that fits your schedule.

While at YU, students participate in four clinical externships, learn how to conduct telehealth sessions and gain clinical experience under the guidance of faculty, supervisors and mentors. Within the coursework, students utilize technology, such as endoscopy, electrical stimulation and ultrasound, to assist with the diagnosis of voice, speech and swallowing disorders. They also obtain the necessary counseling skills to support families facing a challenging diagnosis. In addition, students have the opportunity to attend professional conferences, contribute to scholarly publications and integrate evidence-based practice into clinical practice.

Statement of Diversity, Inclusion and Equality

The graduate health science programs at the Katz School of Science and Health prioritize individual dignity and promote a culture of diversity, inclusivity, and equity in a supportive patient care, learning, and research environment. We are committed to creating a community that recognizes and embraces diverse backgrounds and identities.

Every student, faculty member, patient and their family will be treated with respect, dignity, and professionalism. We do not tolerate or condone discrimination.

We are committed to delivering health care and education in a manner that respects diversity and inclusivity with the full intent of achieving better health, happiness, quality of life, and communication outcomes for all.

Requirements for Professional Practice

The MS in Speech-Language Pathology seeks to develop professionals who are knowledgeable, skilled and ethical in the assessment, diagnosis and treatment of communication disorders, and who are knowledgeable of the state and national requirements for documentation of services rendered. Successful completion of the program prepares you to meet the academic and clinical requirements to apply for certification from the American Speech-Language Hearing Association (ASHA) and licensure in the State of New York. The following guidelines pertain to national and state licensure:

- New York State Guidelines
- National Guidelines
- Requirements for Ethical Practice as a Speech-Language Pathologist
- Essential Functions

Accreditation

The Master of Science (M.S.) education program in speech-language pathology residential and distance education at Yeshiva University is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association, 2200 Research Boulevard, #310, Rockville, MD 20850, 800-4982071 or 301-296-5700.

Program Director and Faculty

The Speech-Language Pathology faculty are world-renowned practitioners, clinicians, and researchers at the forefront of the field. Throughout the program, you will benefit from close faculty mentorship and opportunities to collaborate with the faculty.

- Dr. Marissa, Barrera, Assistant Dean of Health Sciences and MedSLP Program Director
- Dr. Julia Agosto Clinical, Assistant Professor and Clinical Supervisor
- Prof. Andrew Christler, Director of Clinical Education and Clinical Assistant Professor
- Dr. Troy C. Dargin, Director of Online Programs and Clinical Associate Professor
- Prof. Kathleen Fitzgerald, Director of Online Clinical Education and Clinical Assistant Professor
- Prof. Bonni Lipton, Clinical Education Specialist
- Prof. Dylan Mandel Clinical Assistant Professor and Clinical Supervisor
- Dr. Michaela Medved, Director of Sara Schenirer Programs and Clinical Associate Professor
- Dr. Elisabeth Mlawski, Director of On Campus Programs and Clinical Associate Professor
- Dr. Barbara O'Connor Wells, Clinical Associate Professor
- Dr. Laura Sylvia, Clinical Assistant Professor
- Prof. Katie Threlkeld, Director of the Katz Virtual Clinic and Clinical Assistant Professor

Curriculum and Degree Requirements

The MS in Speech-Language Pathology curriculum prepares students to be a clinician in diverse patient-care settings with a commitment to patient-centered and ethical practices. Courses provide hands-on experience ranging from pediatric diagnostics/treatment to complications from communication disorders facing geriatric patients. You will have ample opportunities to collaborate with exceptional faculty, including the chance to incorporate elements of your research interests into an individualized capstone project. Beyond your classes, you will have the opportunity to contribute at practitioner conferences and in scholarly publications.

Course Requirements and Sample Sequence

The full-time Master's in Speech-Language Pathology requires 55 semester hours of coursework and is completed in five successive semesters. Degree completion requires students to complete all of the courses outlined below plus 400 supervised clinical contact hours and sitting for the Praxis exam.

The Master's in Speech-Language Pathology requires 55 semester hours of coursework. The program is offered in the following formats:

- On-campus – full-time — 5 successive semesters
- Online/distance education- full-time — 5 successive semesters
- Online/distance education- part-time — 8 successive semesters

Full-Time Course sequence **COURSES – YEAR 1**		
Fall 1 – 12 Credits	**Spring 1 – 12 Credits**	**Summer 1 – 12 Credits**
Child Language Development and Usage (3 credits) Research Methods and Clinical Assessment of Literature (3 credits) Communicating with Patients and Families (3 credits) Speech Sounds Disorders and Accented Speech (2 credits) Professional Issues/Topics in SLP Level 1 (1 credit)	Child Language Disorders (3 credits) Neuromotor Speech Disorders (3 credits) Geriatric Dysphasia and Airway Management (3 credits) Diagnostic Methods in SLP (2 credits) Clinical Externship in SLP Level 1 (1 credit)	Syndromes and Craniofacial Anomalies (3 credits) Pediatric Swallow and Airway Management (2 credits) Voice Disorders. (3 credits) Role of SLP in Schools (3 credits) Clinical Externship in SLP Level 2 (1 credit)

COURSES – YEAR 2		
Fall 2 – 10 Credits	**Spring 2 – 9 Credits**	
Cognitive and Higher Level Language Disorders (3 credits) Aphasia Rehabilitation (3 credits) Alaryngeal Speech and Management of Head/Neck Cancer (2 credits) Professional Issues/Topics in SLP Level 2 (1 credit) Clinical Externship in SLP: Level 3 (1 credit)	Stuttering and Related Fluency Disorders (3 credits) Speech-Language for Hearing Impaired (3 credits) Professional Issues/Topics in SLP: Level 3 (1 credit) Capstone Project (1 credit) Clinical Externship in SLP Level 4 (1 credit)	

Part-Time Course Sequence YEAR 1		
Fall 1 – 6 Credits	**Spring 1 – 6 Credits**	**Summer 1 – 9 Credits**
Child Language Development and Usage (3 credits) Speech Sounds Disorders and Accented Speech (2 credits) Professional Issues/Topics in SLP Level 1 (1 credit)	Child Language Disorders (3 credits) Diagnostic Methods in SLP (2 credits) Clinical Externship in SLP Level 1 (1 credit)	Syndromes & Craniofacial Anomalies (3 credits) Voice Disorders. (3 credits) Role of SLP in Schools (3 credits)
Part-Time Course Sequence YEAR 2		
Fall 2 – 12 Credits	**Spring 2 – 9 Credits**	**Summer 2 – 6 Credits**
Communicating with Patients and Families (3 credits) Aphasia Rehabilitation (3 credits) Clinical Externship in SLP Level 2 (1 credit)	Stuttering and Related Fluency Disorders (3 credits) Neuromotor Speech Disorders (3 credits) Geriatric Dysphasia and Airway Management (3 credits)	Pediatric Swallow and Airway Management (2 credits) Cognitive and Higher Level Language Disorders (3 credits) Clinical Externship in SLP Level 3 (1 credit)

Part-Time Course Sequence YEAR 3	
Fall 3 – 6 Credits	**Spring 3 – 6 Credits**
Alaryngeal Speech and Management of Head/Neck Cancer (2 credits) Research Methods & Clinical Assessment of Literature (3 credits) Professional Issues/Topics in SLP Level 2 (1 credit)	Speech-Language for Hearing Impaired (3 credits) Professional Issues/Topics in SLP: Level 3 (1 credit) Capstone Project (1 credit) Clinical Externship in SLP Level 4 (1 credit)

Course Descriptions

CSD 5100 Professional Issues/Topics in SLP: Level 1 (1 credit)
The first level of the Professional Issues/Topics in SLP addresses the issues facing the graduate clinician in their practicum sites, as they embark on evaluation and remediation of disorders affecting communication. Skills needed for rehabilitation settings, populations, and age of the client will be addressed, as well as interaction with the health care team. Professional, ethical responsibilities and infection control will be a central focus of the course.

CSD 5110 Professional Issues/Topics in SLP: Level 2 (1 credit)
The second level of the Professional Issues/Topics in SLP focuses on case management, research principles in clinical practice, use of evidence-based practice, counseling, multicultural issues and updates on new healthcare regulation. CSD5110 will include guest speakers to inform the graduate clinician on specific aspects the SLP faces across work settings and across disorders. *Pre-requisite: CSD 5100.*

CSD 5120 Professional Issues/Topics in SLP: Level 3 (1 credit)
The third level of the Professional Issues/topics in SLP focuses on coding and billing for services, advocacy for coverage and payment, healthcare regulations/reform affecting our profession, professionalism, ethical conduct, credentialing, and contemporary professional and multicultural issues. *Pre-requisites: CSD 5110.*

CSD 5200 Externship: Level 1 (1 credit)
Participation in simulated learning and Katz Community Clinical Initiative. *Pre-requisite: CSD 5100.*

CSD 5210 Externship: Level 2 (1 credit)
Full-time clinical practicum experience at a school, group practice, private practice, or non-profit organization with diagnostic and therapeutic participation in speech/language pathology. *Pre-requisites: CSD 5200, CSD 5300.*

CSD 5220 Externship: Level 3 (1 credit)
Full-time clinical practicum experience at a medical setting, school, group practice, private practice, or non-profit organization with diagnostic and therapeutic participation in speech/language pathology. *Pre-requisite: CSD 5210.*

CSD 5230 Externship: Level 4 (1 credit)
Full-time or part-time clinical practicum experience at a medical setting, school, group practice, private practice, or non-profit organization with diagnostic and therapeutic participation in speech/language pathology. *Pre-requisite: CSD 5220.*

C**SD 5300 Diagnostic Methods in SLP (2 credits)**
The philosophy and implementation of procedures for appraisal of communication disorders with emphasis upon the case history, interviewing, assessment (administration, scoring and interpretation of data obtained from observation and from diagnostic instruments used to evaluate language, cognition, articulation, fluency, voice and swallowing), diagnostic impressions, and development of a treatment plan. Observation of and participation in diagnostic sessions is required. *Pre-requisites: CSD 5010, CSD 6400.*

CSD 5400 Communicating with Patients and Families (3 credits)
Course provides an overview of the personal and family emotional; impact of communication disorders, the need to provide healthy patient/professional dynamics to facilitate evaluation and rehabilitation, and acquisition of knowledge and skills related to appropriate communication with patients and their families/caregivers in clinical settings.

CSD 5600 Role of SLP in the Schools (3 credits)
This course explores the organization, management and administration of a school speech-language pathology program. It also incorporates principles of alternative and augmentative communication. This course is helpful for students seeking New York State certification as a Teacher of Students with Speech and Language Disabilities (TSSLD). *Pre-requisite: CSD 6410.*

CSD 5010 Speech Sound Disorders and Accented Speech (2 credits)
This course explores the normal acquisition of speech sounds, the etiology and nature of disorders of articulation, the assessment of speech production, and intervention methods for persons exhibiting articulatory and phonological disorders. Multicultural issues including accented speech and the assessment and treatment of speech disorders will be addressed. The role of phonological awareness in the acquisition of both speech and reading will also be discussed.

CSD 6110 Neuromotor Speech Disorders (3 credits)
This course examines neural anatomy of speech, with in-depth evaluation, analysis and remediation of motor speech disorders, including dysarthria and apraxia. Perceptual ratings of speech samples and subjective analysis of speech tendencies in adults is emphasized. The importance of research in motor speech disorders will be examined, including "hot topics" in current research. *Pre-requisite: CSD 5010.*

CSD 6120 Syndromes and Craniofacial Anomalies (3 credits)
This course examines the impact of syndromes, genetic defects, and trauma in the success of communication, with specific attention to speech production. Case analyses, etiologic factors, and review of pertinent research for orofacial anomalies, including cleft palate, are included.
Pre-requisite: CSD 6110.

CSD 6130 Stuttering and Related Fluency Disorders (3 credits)
This course covers advanced theories and techniques of diagnosis and treatment of stuttering behaviors in children and adults. Case analyses, etiologic factors, and review of pertinent research are included. *Pre-requisites: CSD 5400, CSD 6120.*

CSD 6200 Voice Disorders (3 credits)
This course addresses assessment and management of voice and respiratory diseases affecting oral communication and activities of daily living, focusing on perceptual, acoustic, aerodynamic and stroboscopic assessment, and the planning of goals/rationale/procedure for disorders affecting voice and respiration across the lifespan, population, and cultures. Case analyses, etiologic factors, and review of pertinent research in voice disorders are included. *Pre-requisite: CSD 6110.*

CSD 6210 Alaryngeal Speech, Head/Neck Cancer, Principles of Endoscopy (2 credits)
This course addresses the anatomical, physical, and psychological impact for the patient with head/neck cancer and/or laryngectomy, management of head/neck cancer, as well as the principles and infection control measures for endoscopy by the SLP. *Pre-requisites: CSD 6400, CSD 6300.*

CSD 6300 Pediatric Swallow and Airway Management (2 credits)
This course provides students with knowledge and resources necessary to effectively evaluate and treat feeding, swallowing and breathing disorders in medically complex infants and children in medical, school, and home settings. Normal and abnormal anatomy/physiology affecting swallow and airway assessment and management from infancy through childhood will be included. Case analyses, etiologic factors, and review of pertinent research in swallow and airway management are included. *Pre-requisite: CSD 6310.*

CSD 6310 Geriatric Dysphagia and Airway Management (3 credits)
This course provides students with knowledge and resources necessary to effectively evaluate and treat feeding, swallowing and breathing disorders in medically complex adults. Normal and abnormal anatomy/physiology affecting swallow and airway assessment and management from adult through geriatric. Discussion of the role of therapeutic modalities (NMES, sEMG, Taping, Ultrasound) are included. in Case analyses, etiologic factors, and review of pertinent research in swallow and airway management are included. *Pre-requisites: CSD 5400, CSD 5100.*

CSD 6400 Child Language Development, Usage and Literacy (3 credits)
This course addresses Child language acquisition, development, and foundations of literacy from infancy thru school age. Includes neurological, psychological, developmental, linguistic, and cultural bases; speech/language developmental milestones; and the relationship of language and literacy. Students will learn about common models of language processing and the latest advances in neuroimaging studies on language processing in the brain.

CSD 6410 Child Language Disorders (3 credits)
This course addresses the wide variety of congenital and acquired language delays and disorders seen in the pediatric population; confronts current issues in the identification, research literature in child language disorders, and multicultural issues affecting assessment and management of children with language and literacy disorders. *Pre-requisite: CSD 6400.*

CSD 6420 Aphasia (3 credits)
This course addresses evaluation, diagnosis, and treatment of adults with aphasia, current theories of language processing and of acquired language breakdown subsequent to neuropathology. Case analyses, etiologic factors, and review of pertinent research in aphasia are included. Treatment across modalities (verbal to non -verbal). *Pre-requisite: CSD 6110.*

CSD 6430 Cognitive and Higher-Level Language Disorders (3 credits)
This course addresses evaluation and management of processing disorders, autistic spectrum disorders, pragmatic language impairment disorders, specific language impairment and neurobehavioral disorders. Communication impairment from brain injury will be covered, as well as transdisciplinary approaches to cognitive disorders. Current issues in the field related to management of associated communication disorders as well as the importance of research in the field of cognitive disorders are discussed. *Co-requisite: CSD 6420.*

CSD 6510 Speech/Language Intervention for Hearing Impaired (3 credits)
Course examines the theory and clinical intervention for patients with hearing loss and a speech/language deficit. The impact of hearing disorders on communication is examined, including attention to receptive errors, speech/voice quality, and modification of treatment goals to account for underlying hearing deficit. The role of the SLP as a member of the cochlear implant team and/or deaf education is addressed. Case analyses, etiologic factors, and review of pertinent research are included. *Pre-requisite: CSD 6410.*

CSD 6600 Research Methods and Critical Assessment of the Literature (3 credits)
This course focuses on application of design and analysis of research in Speech-Language pathology and includes sample peer reviews as well as critique of recent research articles. Discussion of Evidence Based Practice (EBP) in designing care plans.

CSD 7000 Capstone Project (1 credit)
This course serves as part of the comprehensive assessment of knowledge and skills for the graduate clinician, determining academic and clinical knowledge, applied to specific cases that are representative of the complexity expected of an individual who is prepared to enter the profession of speech-language pathology. The course is individually tailored to the degree candidate, taking into consideration the student's expressed area for Clinical Fellowship. *Pre-requisite: CSD 6600.*

Clinical Externships – Health Requirements

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Admissions Requirements

YU participates in the **Communication Science and Disorders Centralized Application Service** (CSDCAS). Applicants should apply using the **CSDCAS application**.

Successful candidates to the MS in Speech-Language Pathology must have:

- A bachelor's degree from an accredited college or university
- Official transcripts from all colleges and universities attended
- GRE Scores are preferred but not required for the 2025-2026 academic year.
- Resume
- Personal statement demonstrating a commitment to contribute to and complete the program
- Two letters of recommendations
- Proof of 25 observation hours signed off by an ASHA certified SLP
- Non-native English speakers must pass the TOEFL (program code 7619) with a minimum score of 550 (or 100 on the computer-based test). Additional accent reduction or ESL instruction may be required.

Prerequisite coursework:
Applicants must show proof of satisfactory completion of all prerequisite coursework. Prerequisites may be fulfilled with courses taken at the graduate or undergraduate levels.

Pre-Requisites that need to be completed with a grade C or higher by August 1, 2025:

- Speech Science
- Hearing Science
- Phonetics
- Statistics
- Introduction to Speech-Language Pathology
- Chemistry or Physics
- Biology
- Social or Behavioral Science
- Proof of 25 observation hours signed off by an ASHA certified SLP