Katz School
The Katz School
of Science and Health

Graduate Academic Catalog

2019 - 2020

Yeshiva University I The 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 on the basis of 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.

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WELCOME TO THE KATZ SCHOOL

The Mordecai D. and Monique C. Katz School of Science and Health at Yeshiva University (the 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. The 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 Digital Marketing and Media, Cybersecurity, Quantitative Economics, Mathematics, Data Analytics and Visualization, Biotechnology Management and Entrepreneurship, or Speech-Language Pathology. 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, The Katz School

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 is committed to a policy of equal opportunity and nondiscrimination in admissions and all other facets of its educational programs and activities. The responsibility for the University's affirmative action/equal opportunity and unlawful harassment policy lies with all deans, chairpersons, department heads, directors, administrators, managers and supervisors in their areas of responsibility and requires the commitment of the entire University community.

If you have any questions relating to equal opportunity or affirmative action, or if you wish the University to pursue a possible violation of University policy, you should contact the University's Title IX Coordinator, Ms. Renee Coker at (646) 592-4336/ renee.coker@yu.edu.

Accreditation

Yeshiva University is accredited by the Commission on Higher Education Middle States Association of Colleges and Schools and by the appropriate professional agencies: the Liaison Committee on Medical Education of the American Medical Association, the Association of the American Medical Colleges, 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 a Candidate for Accreditation by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association.

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. Federal law requires us to make crime statistics available, and you can find them at http://ope.ed.gov/security. Search for Yeshiva University, then click on a particular campus. At the bottom of each page, you can select various categories of crime statistics to view. The University's annual security report also contains policy statements and crime statistics for the University, and is available online at http://yu.edu/safety-security/reports/security/ or from a campus Security Department office. You can also contact YU Security at 212-960-5221 for more information.

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 on the basis of individual merit. The University does not discriminate in its programs and activities, including employment practices, on the basis of race, religion, creed, color, national origin or ancestry, sex, age, physical or mental disability, veteran or disabled veteran status, genetic predisposition/carrier status, marital status, sexual orientation, gender identity and expression, citizenship status or other protected classes under the law. 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 Non-Discrimination and Anti-Harassment Policy and Complaint Procedures can be found online at

http://yu.edu/student-life/resources-and-services/standards-policies/; http://yu.edu/hr/policies/ and http://yu.edu/ogc/policies/ (among other places). 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, fairly 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, Ms. Renee Coker at (646) 592-4336 / renee.coker@yu.edu.

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

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:

- Athlete Protection Policy
- 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)

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 permits certain disclosure without the student’s written permission. Please visit the Office of the Registrar or its website at https://www.yu.edu/registrar/parents to obtain the Yeshiva University FERPA Policy Statement.

Use of the University’s Name

No student or student organization may use the name of the University or any of its components in print or digital/electronic media for any purpose, including identification, without written permission from the Office of the Dean.

Program Codes

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

HEGIS Code	Title	Degree
1220.00	MS in Speech-Language Pathology	Master of Science
2204.00	MS in Quantitative Economics	Master of Science
0702.00	MS in Data Analytics and Visualization	Master of Science
0499.00	MS in Biotechnology Management and Entrepreneurship	Master of Science
0701.00	MS in Cyber Security	Master of Science
1701.00	MA in Mathematics	Master of Arts
0509.00	MS in Digital Marketing and Media	Master of Science
1902.00	MA in Physics	Master of Arts

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 all 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 30% or more of their scheduled class. If a student misses 30% 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.

For programs within clinical components students may not miss 20% or more of any course, clinical or not. At the Katz School, this pertains to only to students in the Speech Language Pathology program. 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.

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 degree within five years of the first semester the student enrolled in the program. Students who go beyond this limit will need permission from their Program Director to continue their studies in the 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

Students may access their grades at www.yu.edu/myyu. To view grades:

1. Log in with your Banner ID
2. Click on "Student and Financial Aid"
3. Click on "Student Records"
4. Click on "Final Grades" and select the appropriate term

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	
GRADE	**DESCRIPTION**	**GRADE**	**DESCRIPTION**
A, A-	Excellent	G	Stopped attending without filing an official withdrawal form (counted as failure)
B+, B-	Good	I	Incomplete
B	Satisfactory	L	Audit (no credit)
C+, C	Poor	W	Withdrawal without penalty or prejudice
F	Failure	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.	
N	No Credit		
P	Pass		

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.

GRADE POINT AVERAGE (GPA) CHART		
A = 4.000	B = 3.000	C = 2.000
A- = 3.667	B- = 2.667	F, G = 0
B+ = 3.333	C+ = 2.333	

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

A final grade may be changed by the instructor only for a computational error or recording error. In these two instances, the instructor completes a Change of Final Grade Form and the respective program director signs to approve the change and will send to the Office of the Registrar.

If a student believes a grade is incorrect, he/she must first meet with the instructor. Should this meeting be unsatisfactory, and the student would like to officially appeal the grade, the student may next meet with the Program Director. The Program Director will review materials related to the grade appeal and make a final decision.

Prerequisites

In order to receive credit for an undergraduate prerequisite course, a student must have received a C or better in the course. With respect to a graduate prerequisite course, the student must receive a B or better in the course. 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

No more than 9 credits towards the master's degree may be transferred from other institutions.

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 the Katz School graduate 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.

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 MYYU (www.yu.edu/myyu). 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.

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 considered withdrawn from the 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 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 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 MYYU 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 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. Any student who is on probation or does not meet the satisfactory academic performance standards will not be eligible to receive a degree.

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 elapse 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 will be mailed to the address students list on the Application for Graduation Form within eight (8) weeks of the degree date. 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 www.yu.edu/myyu. 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.

No official transcript will be issued for a student unless the student's financial record with the University is completely clear. 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 www.yu.edu/myyu. 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 per semester and 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 may be placed on academic probation 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

Students must remain in good academic standing. A student who, for a semester, either receives a "F" (fails a course) or has a cumulative GPA below 3.000, is placed on academic probation for the following semester. If for any subsequent semester the student receives an "F" (fails a course) or has a cumulative GPA below 3.000 the student may be dismissed from the Katz School at the discretion of the Program Director.

If a student receives a "**F"** in any of their core courses, the student 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. If a student receives a "F" in one of their elective courses, the student must work with their program director to determine if they need to retake that specific course or a different elective course to complete their degree requirements.

Appeals Procedure: Students may appeal dismissal in writing to the Committee on Academic Standards and Integrity (CASI). The appeal must be made before the following semester begins. The CASI will review the case and will offer a recommendation to the Dean of the school. The Dean will render the final decision on the student dismissal. Decisions are communicated in writing to the student, the Office of the Dean, the Office of the Registrar, the Office of Student Finance, and the Office of Student Affairs. Where applicable, during their academic probation students may not be permitted to apply for their next externship or internship or attend an externship or internship they already received. If the problems above persist after the following semester, the student may be dismissed from the program.

If a student is placed on probation, he/she will receive a letter from the Program Director that outlines the reason for the academic probation and a date for the performance review meeting with the faculty committee. The student must sign and return the letter acknowledging his/her understandings and responsibilities.

CHANGES OF STATUS

The Katz School requires 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 are not registered for academic credits or courses but who expect to return to the university time should file for a Leave of Absence. The leave of absence must be approved by the Program Director. To apply for a Leave of Absence the student must fill out and submit a Leave of Absence form and should be signed and returned to the Office of the Registrar prior to the start of classes for the given semester. Students may apply for a leave of absence for a maximum of 180 days. Students are only eligible for a leave of absence after the completion of one (1) semester of coursework.

If the need for a leave of absence extends beyond 180 days – taken together or separately – the student must officially withdraw from the School. Students who wish to withdraw must submit an Application for Withdrawal from the School Form, available in the Office of the Registrar. The form should be signed by both the Program Director and the Dean and returned to the Office of the Registrar.

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 may be placed on probation or 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, 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]

Penalties and Procedures for Violating Academic Integrity Standards

Accordingly, students who act in a dishonest manner by cheating on written exams or plagiarizing are subject to penalty under the following procedures.

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

Notification Process

Any member of the Yeshiva University community may initiate a report of cheating on a written exam or plagiarism. The complainant should report the incident immediately, and no later than 10 days after the incident occurred, and should submit an Incident Report Form to the applicable Program Director.

1. The Program Director will then submit a written copy of the charges (cheating or plagiarism) to the student no later than 10 days after the incident was initially reported.
2. The student will then have the opportunity to accept or deny responsibility for the actions or challenge the allegations within 5 days after receiving the report documenting the charges.
3. If the student accepts responsibility for the action, then appropriate academic sanctions will apply including, but limited to, a retake of the exam, reduced credit or zero on an exam, reduced final grade or failing grade, or resubmit assignment paper. If the student denies the allegations, the Katz School Student Advocate will conduct an initial investigation to assess the merits of the case within 10 days after receipt of the student's statement of denial. The Katz School Student Advocate is a full-time staff member appointed by the Dean to help students understand academic policies and procedures and to facilitate the initial review of the Academic Integrity process by collecting and reviewing documentation.

Students are not permitted to drop the course in which the alleged incident occurred during or after the pendency of proceedings under this policy.

Initial Review

If the student denies the allegations, the Katz School Student Advocate will review all submitted evidence and will meet with the faculty, student, and other relevant parties to determine if the case at hand falls within the scope of an academic integrity violation.

Hearing

If the incident appears to violate academic integrity standards, the Dean will convene a hearing before the Committee on Academic Standards and Integrity (CASI) to determine if the student violated academic integrity standards no later than 30 days after the student formally denied the incident. The CASI will consist of a four-

[1] Portions of this definition are adapted from The Council of Writing Program Administrators, "Defining and Avoiding Plagiarism: WPA Statement on Best Policies" (http://www.wpacouncil.org/positions/index.html); Syracuse University, "Academic Integrity Policies and Procedures" (https://psdocs.syr.edu/sudocs/vpcai/finalizeddocs3.pdf); and Washington State University, "Plagiarism: What is it?" (http://www.wsulibs.wsu.edu/plagiarism/what.html).

person impartial body appointed by the Dean, including the Katz School Student Service Coordinator, a Katz School program director, a faculty member, and a student. A non-voting representative from the Office of the Registrar may also be present for the hearing.

The CASI Committee Chair will notify the student in writing of the date, time, and place of the hearing. The student can meet with the Katz School Student Advocate for further clarification on the hearing process. The student may bring written materials and witnesses, but no advocates or advisers (including parents and attorneys). The Committee will consider all the facts and circumstances, may ask for further information from the relevant parties, and will determine whether the student committed an academic integrity violation within 10 days after the hearing. The Committee will provide a written summary of the hearing and its findings along with its recommendation for appropriate action to the Dean.

Decision

The Dean may accept, reject, or modify the Committee's recommendation, and will notify the student in writing of the decision.

Appeal

Within 10 days of receipt of the Dean's letter, the student may file an appeal by submitting it in writing to the Provost of Yeshiva University. No appeal will be considered if received after the 10-day deadline. The Provost will consider the merits of the appeal and will consult with the Chair of the CASI. The Provost may interview the student but will not conduct a new hearing. The standard for review will be whether the student received appropriate notice and had an opportunity to be heard (i.e. whether there was a fair hearing), and whether the School followed its procedures. The Provost may designate the Dean of another University graduate or professional school to hear the appeal. The student will receive notice of the decision in writing in a timely fashion, but no later than 3 weeks from the receipt of the appeal. This decision is final.

Records

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

Readmission after Dismissal

Students who have been dismissed as a result of a violation of academic integrity standards may apply for readmission after one semester of non-attendance. An application for readmission should be made directly to the Program Director and the Office of Admissions. The application should state the reasons for readmission and include a statement of steps the student has taken or changes he/she has made to merit readmission. Any readmission may require conditions of probation and/or academic or other counseling.

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.

If a student commits one of the above (or similar) violations, the faculty member will propose an appropriate penalty. If the student accepts the proposed penalty, the faculty member will notify the applicable Program Director of the action taken. If the student denies the allegations or contests the penalty, the faculty member will

notify the Program Director, who will then convene a hearing of the CASI in accordance with the procedures outlined above.

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

The School is committed to a policy of resolving all student grievances through a set of appeal procedures designed to address the student's issue or concern fairly. Students may appeal evaluation decisions by instructors, supervisors or faculty advisors when they believe they were subject to harassment, discrimination, and unsubstantiated claims of unsatisfactory performance that deviate significantly from standard evaluation procedures used by that instructor, supervisor or faculty advisor. 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 has a grievance, he/she is assured of due process, respect, and confidentiality. The following procedure should be initiated within the semester in which the problem or incident occurs and no later than 30 days beyond the final day of classes in any given semester.

1. **Informal Level:** Students should first discuss their grievance with the primary instructor, supervisor, or faculty advisor who is the subject of the grievance. The purpose of this meeting is to clarify the reasons for the decision or action by the instructor, supervisor or faculty advisor and to provide the student with an opportunity to respond to the decision or action. The meeting also provides an opportunity for the student and the instructor, supervisor or faculty advisor to reach a common understanding of the identified problem(s) and clarify recommendations and the expected timeframe within which problems will be remedied. A follow-up meeting is often scheduled to evaluate compliance with these recommendations. Every effort should be made to resolve grievances at this level and safeguard confidentiality by involving only essential parties.

2. **Meet with Program Director:** When the student thinks that his/her grievance is still unresolved by the instructor, supervisor, or faculty advisor, the student may arrange a meeting to discuss the grievance with the Program Director. Students are expected to submit written documentation of evidence for their grievance within 30 days of the conclusion of the Informal Level process, and preferably by the final day of classes of the semester in which the problem occurred. Students can consult with the Katz School Student Advocate for support with this process. The Program Director will review all documentation and will notify the student and relevant instructor, supervisor or faculty advisor of his/her decision.

3. **Committee on Academic Standards and Integrity (CASI):** If the Program Director cannot resolve the student's issue, or the student files (within 30 days) a written appeal of a decision made by the Program Director, then the case will be referred to the CASI. The student can consult with the Katz School Student Advocate for support with the appeal process. The faculty on the committee cannot be faculty members from the student's program. The student will have the opportunity to orally present the nature of his/her

appeal to the committee. The committee will review all documentation and testimony and will notify the Program Director and the student of their decision to grant or deny an appeal or recommendation on disciplinary action on the issue.

4. **Review by Dean:** Should the CASI not be able to resolve the student's issue, or the student wishes to appeal a decision by CASI, the student must submit a written request (within 30 days of the decision) that the Dean review the action, clearly stating the reasons for such a review. The Dean may grant or deny the request. If the Dean grants the request, he/she will evaluate all the available materials as to the facts and circumstances, including any recommendation from the CASI, and may request a personal interview with the student. The Dean's decision shall be final as to whether to review the determination, and, if so, whether to adhere to the committee's recommendation.

STUDENT LIFE AND RESOURCES

Student Services

Katz School Student Services helps students navigate where to go and whom to talk to. Students can schedule an appointment with the Student Services Coordinator by emailing katzstudentservices@yu.edu or calling 646-592-4718. Drop-in office hours are updated each semester to accommodate students' class schedules.

Academic Advisement

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

Canvas

Canvas 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

Yeshiva University's Career Center offers students a range of programs and resources, from personalized counseling and career planning to the latest professional search technologies. The Career Center 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, the 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 have access to the University's Student Health Centers on the Wilf and Beren campuses. The Health Centers provide free walk-in care during business hours. The Health Centers treat students experiencing episodic illnesses and minor injuries on campus. Hours and contact information are available online at https://www.yu.edu/student-life/resources-and-services/health-and-wellness.

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.

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 Form. These forms are given to incoming students by the Enrollment office.

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. Support includes resources for finding an apartment, arranging transportation, getting settled in the City, and jumpstarting friendships.

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, the 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 Yankees.

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/student-life/resources/international/current-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 form 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.

PROGRAM DESCRIPTIONS

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 and Faculty

- Dr. Rana Khan – Director and Clinical Professor, MS in Biotechnology Management and Entrepreneurship

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**
● Foundations of Biotechnology (3 credits) ● Biotechnology Management (3 credits) ● Elective (3 credits) ● Intellectual Property, Regulation and Compliance (3 credits)	● Pharmacology Product Development & Commercialization (3 credits) ● Applications in Biotechnology (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 XXXX Technology Entrepreneurship
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 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.

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 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: 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 also have the opportunity to gain practical experience through internships, CPT and STEM OPT.

Program Director

- David Schwed – Program Director, MS in Cybersecurity

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

Semester 1	**Semester 2**	**Semester 3**
• Cybersecurity Foundations (3 credits) • Architecture of Secure Operating Systems, Applications, and Devices (3 credits) • Network, Data and Communications Security (3 credits)	• Leading Technology Organizations (3 credits) • Cyber Audit and Testing (3 credits) • Risk Management and Cybersecurity (3 credits)	• E-Discovery and Computer Forensics (3 credits) • Elective* (3 credits) • Elective* (3 credits) • Capstone (3 credits)

***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.

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 CyberTerrorism
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 XXXX 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 and

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-English-speaking institution)

MS in Data Analytics and Visualization

Yeshiva's Master's 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 and Faculty

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.

- Andy Catlin – Director, MS in Data Analytics and Visualization

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

To prepare students for careers in these industries, the program draws from media and design, communications, social science, and information systems fields. Students will complete a project-based curriculum designed to develop strategic thinkers, doers, and most importantly, the marketers of tomorrow.

Program Director and Faculty

- Maria Blekher – Director, MS in Marketing

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.

All students take six core courses (18 credits), including an individualized, project-based capstone course through the YU Innovation Lab.

Sample Course Sequence

Year 1 – FALL	**Year 1 – SPRING**	**Year 1 – SUMMER**
● Marketing Management and Strategy (3 credits) ● Brand Management (3 credits) ● Communications (3 credits) ● Consumer Behavior and Customer Relationship Management(3 credits)	● Elective 1 ● Web Analytics and SEO (3 credits) ● Market Research Methods (3 credits) ● Visual Design and Storytelling (3 credits)	● Elective 2 ● Optional Internship (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 drivers 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 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 Masters 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 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 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 5727 Applied Social Media
What is 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 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.

MAR 5901 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 5900 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.

Admissions Requirements

Candidates must 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)

MA in Mathematics

The MA in Math at the 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.

Masters 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.

1. A bachelor's degree from an accredited institution
2. 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.
3. A B average (GPA of 3.0/4.0) in science and mathematics courses.
4. Three letters of recommendation.
5. GRE scores.
6. 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. 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 5301 Functions of a Real Variable. 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. 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. 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. 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. 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 5302 Ordinary Differential Equations. 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. 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. 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. 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. Qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; low-dimensional dynamics; introduction to ergodic theory. *Prerequisite: graduate standing or permission of department.*

MAT 5100 Mathematical Modeling. 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. 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. 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. 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. 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. 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. 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 5490 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 5251 Topics in Differential Geometry. 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. 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. Possible topics may include: formal logic, naive set theory, Russell's paradox, sets and classes, transfinite ordinals and cardinals, the real number system, well-ordering 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 5600 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. 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

Admission to the PhD Program in Mathematical Sciences is highly competitive. In addition to the requirements for admission to the MA program, sixty-credit hours of graduate work are required for admission to the PhD program. Interested students should contact the director of the graduate mathematics program or the faculty member with whom they wish to study (copying the director).

Credit Requirement:

The minimum credit hours required for the PhD is 66. This includes up to 30 hours of thesis research. It is expected that PhD admission will require the equivalent of courses necessary to complete an MA or MS degree.

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.

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

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

MS in Quantitative Economics

Yeshiva University's MS in Quantitative Economics (MQE) degree is a 12-month STEM program in which you will master micro, macro, and financial economics. In addition, you will be trained in statistical and computational aspects of economics, with applications to fields such as macro-labor economics, public finance, monetary policy, financial economics and market design.

Specialization in MS in Quantitative Economics: Quantitative Finance

Yeshiva University's Specialization in Quantitative Finance is your opportunity to dive headfirst into the world of quantitative finance, mathematical modeling, financial econometrics, and data science. What sets Yeshiva's Specialization in Quantitative Finance apart from traditional quantitative finance degrees is its home in the MS in Quantitative Economics (MQE). As a student in both programs, you'll graduate with a solid grounding in the theoretical and practical economic foundations that shape global economies and markets.

Program Director and Faculty

Faculty in the quantitative economics program are research-active and work on issues spanning macro and micro economics, at both the theoretical and empirical levels. Our faculty publish work in prestigious international scientific journals, such as *American Economic Review*, *Econometrica*, *Quarterly Journal of Economics*, *Review of Financial Studies*, *Journal of Economic Theory* and *Journal of Mathematical Economics*. They also participate in study groups and co-organize conferences sponsored by the NBER, the Cowles Foundation, and other institutions of international renown.

- Dr. Ran Shao – Director and Associate Professor, MS in Quantitative Economics Program
- Dr. Gaetano Bloise, Professor of Economics, MS in Quantitative Economics Program
- Dr. Kun Ho Kim, Assistant Professor of Economics, MS in Quantitative Economics Program

Curriculum and Degree Requirements

The MS in Quantitative Economics is an intensive 30-credit, 12-month, full-time program covering both the theory and practice of quantitative economics. You will receive rigorous training in micro and macroeconomics, financial economics, and statistical and computational aspects of the field. You may pursue either the General or the Quantitative Finance tracks.

We keep classes small to foster personal interaction between and among faculty and students and to give you hands-on experience with our department's latest and most cutting-edge research.

Econometrics classes are complemented with hands-on lab sessions. All students will take an independent study designed in collaboration with their faculty advisor.

The Specialization in Quantitative Finance is part of the STEM-approved MS in Quantitative Economics. You'll earn the master's degree and the specialization in just one year under the guidance of senior researcher faculty and accomplished professionals. Courses include problem sets and projects and are all grounded in both theory and practice. Faculty coordinate across classes so that you have an integrated experience throughout the program.

Sample Course Sequence

YEAR 1 – FALL	YEAR 1 – SPRING	YEAR 1 – SUMMER
● Mathematics for Economists (3 credits) ● Mathematical Statistics (3 credits) ● Macroeconomics I (3 credits) ● Microeconomics I (3 credits)	● Econometrics (3 credits) ● Macroeconomics II (3 credits) ● Microeconomics II (3 credits) ● Elective 1 (3 credits) * ● Elective 2 (3 credits) *	**Summer 1** ● Independent Study (3 credits) **

Sample Course Sequence: Quantitative Finance Track

YEAR 1 – FALL	YEAR 1 – SPRING	YEAR 1 – SUMMER
● Probability and Statistics (3 credits) ● Mathematical Methods (3 credits) ● Econometrics (3 credits) ● Microeconomics I (3 credits)	● Financial Economics (3 credits) ● Macroeconomics I (3 credits) ● Microeconomics II (3 credits) ● Financial Time Series Analysis (3 credits) ● Data Science for Quantitative Finance (3 credits)	**Summer 1** ● Fieldwork (3 credits)

***Elective Courses:**

- Quantitative Macroeconomics (3 credits)
- Topics in Game Theory & Industrial Organization (3 credits)
- Financial Economics (3 credits)
- Corporate Financial Economics (3 credits)
- Market Design (3 credits)
- Monetary Economics (3 credits)

****Independent study:** Students have the option to complete a 3-4-month research internship in a research laboratory or equivalent institution, or to complete a research paper under the supervision of a faculty member. Students who complete the internship must also submit a written report.

Year 2 - Fall Semester – optional semester at Universite Pantheon-Sorbonne in Paris, France
Students may take two electives at Universite Pantheon-Sorbonne (Paris 1) in Paris, France. The MSc in Models and Methods in Quantitative Economics offers a variety of options for electives. The program is housed at the Maison des Sciences Economiques in downtown Paris.

This option is ideal for those who want to apply for a PhD program, specialize in fields not covered by Katz electives, or pursue a business career in Europe.

Course Descriptions

ECON 5101 Microeconomics I
This is the first course in the microeconomics sequence for the Master's in Quantitative Economics. The purpose of this course is to build a solid background in microeconomic theory. This will be done by giving you the core foundations of microeconomic theory and solidifying these with selected examples. The main topics we will cover include Choice Theory, Consumer Theory, Producer Theory, Uncertainty, General Equilibrium, and Mechanism Design.

ECON 5102 Microeconomics II
The purpose of this course is to introduce you to the strategic foundation of microeconomics from a theoretical perspective. It presents the basic non-cooperative game theory by developing the analysis of static and dynamic games. It proposes an application of game theory to oligopolistic competition. It finally provides a solid introduction to the market failure induced by asymmetric information (adverse selection and moral hazard).

ECON 5103 Macroeconomics I
This is the first course in the macroeconomics sequence for the Master's in Quantitative Economics. Research in quantitative macroeconomics over the last 70 years has brought us important progress in understanding why countries' economies grow, why they experience booms and recessions, and how different countries' economies are linked. Practicing macroeconomists, both in research, in government, in multinational organizations, and in business firms use these models to organize their thinking about these topics. However, there is still plenty of room for work since these models are highly imperfect in many ways. Therefore, the focus of this course will be to learn the basic models of growth and business cycles well enough to understand how to work with them and to understand what they explain convincingly and in what dimensions they fail.

ECON 5104 Macroeconomics II
This course is the continuation of Macroeconomics I. That course introduced the basic tools of neoclassical macroeconomic analysis: Growth Theory and the Stochastic Growth Model otherwise known as Real Business Cycle (RBC) Model. This course focuses on the applications of these tools, with an emphasis on departures from the complete markets, frictionless approach. The course will focus on four types of frictions widely seen to play an important role in macroeconomic analysis: Sticky Prices, Search, Financial Frictions (from moral hazard), and adjustment costs in consumption and investment.

ECON 5110 Econometrics
This course is the second of a two-semester graduate level study of the theory and practice of econometrics. The course assumes a working knowledge of concepts of econometric analysis. The objective is to work through a common set of principles, to formulate the theoretical underpinnings of various models, to study the workings of many econometric models, to be able to recognize variants of existing models, to develop variations of existing models that fit particular research problems. Hence, the use of MATLAB is going to be an integral part of the course.

ECON 5112 Financial Economics
This course provides an overview of the theory of financial markets from an economic perspective. The major conceptual tool that we will use to study these phenomena is the notion of economic equilibrium. The course is essentially divided up in two parts. In the first, we will build our understanding of the role of financial markets in hedging and insuring participants against risks. In the second, we will study the efficiency properties of financial markets, and stress the perverse equilibrium effects that less-than-perfect financial markets can have: how vulnerable they may be to self-fulfilling prophecies and (ir)rational exuberance; the possibility of financial crises, in particular of bank runs, as self-fulfilling prophecies; and whether or not financial markets transmit and spread information that some traders have privately acquired on companies, currencies and other events. Our analysis of finance uses the modern theory of microeconomics. It aims at constructing (relatively) simple mathematical models to study the welfare properties of financial markets, and the implications for asset prices.

ECON 5115 Market Design
This course introduces basic results in market design, a subfield of microeconomic theory where researchers propose desirable and often practical solutions to allocation problems in reality. Due to such a practical nature of this topic, students should become able to propose appropriate solutions by themselves to various allocation problems.

ECON 5201 Mathematics for Economists
This course covers some basic mathematical techniques for economists. It focuses on the theory and applications of optimization in both static and dynamic settings. It also introduces fixed point theorems that are fundamental for general equilibrium analysis and game theory models with multiple decision-makers.

ECON 5202 Mathematical Statistics
This course is the first of a two-semester graduate level study of the theory and practice of econometrics. The course assumes a working knowledge of concepts of calculus, linear algebra and some introductory probability and statistics. The objective is to work through the fundamentals of theoretical statistics.

ECON 5205 Quantitative Macroeconomics
This course aims to introduce modern quantitative methods in macroeconomics. The class will consist of two parts: The first part (about 40% of the lectures) will review the formal theory of dynamic optimization and recursive methods in macroeconomics. The second part of the class (about 60% of all lectures) will start with a *brief* introduction to MATLAB followed by detailed lectures on applying computational methods to solve a wide variety of models in macroeconomics. Although computation is a major component of this class, it is *not* intended to be a course in computer programming, and the students are expected to learn programming on their own.

ECON 5282 Corporate Financial Economics
This course is a graduate level study of the theory of corporate financial economics. The course will mix some fundamental accounting with contract theory and other aspects of microeconomic theory to discuss the main ideas on firms and their financing relevant to policy-makers and decision-makers. Topics may include: accounting/financial statements; corporate governance; capital structure; capital budgeting; asymmetric information in corporate finance; mergers and acquisitions.

MATH 5320 Complex Systems: Financial Time Series
This course provides a rigorous introduction to modeling and prediction of financial time series. The goals are to learn basic characteristics of financial data, understand the application of financial econometric models, and gain experience in analyzing financial time series. We begin with the basic concepts of linear time series analysis such as stationarity and autocorrelation function, introduce regression models with time series errors, seasonality, unit-root non-stationarity, and long-memory processes. We provide methods of analysis in the presence of conditional heteroscedasticity and serial correlations of asset returns. The course introduces heavy-tailed distributions, and their application to financial risk management. In particular, we discuss modern valuations of credit risk. We introduce multivariate time series analysis and apply the concept of co-integration to investigate arbitrage opportunity in pairs trading. The course places great emphasis on empirical data analysis. We use real examples and exercises in R will be involved. The course aims to broaden the horizons of students in applied mathematics and to provide conceptual background to students who are interested in a career in financial industry.

QFIN 5201 Data Science for Quantitative Finance
This course introduces students to building data science models for financial applications. These models will be created using reproducible data science workflows, using modern statistical programming tools and techniques. The course will first focus on obtaining data from various sources, preparing and transforming data as needed for downstream analysis, and performing exploratory data analysis. We'll then look at the most important descriptive,

predictive, and prescriptive analytic techniques for analytical financial modeling. Throughout this project-based course, there will be an emphasis on asking good guiding questions and effectively communicating results through text, tables, and visualizations.

Admissions Requirements

Quantitative is the underlying theme in the Quantitative Economics curriculum. 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.

Successful candidates to the MS in Quantitative Economics must possess a bachelor's degree from an accredited college or university and must submit the following items:

- Online application
- Official undergraduate and/or graduate transcripts from all college(s) or universities you have attended. Unofficial transcripts may be submitted through the online application for initial review to start the admission process
- Official GRE or GMAT scores results for verbal, quantitative and writing (no minimum score requirement) (MQE code: 0067)
- Official TOEFL score result is required for international applicants who have completed a bachelor's degree from an institution in a non-English-speaking country. (MQE code: 1698)
- Resume or CV
- Personal Statement (a brief 2–5 pages) describing your goals and your commitment to contribute to and complete the program
- Two professional and/or academic recommendation letters (can be requested through online application)

MS in Speech-Language Pathology

Yeshiva University's MS in Speech-Language Pathology is one of the few programs in the country specializing in medical speech-pathology. The master's program focuses on neuro-motor communication and swallowing disorders as well as multidisciplinary approaches to diagnosing and managing speech and language cases. The Katz School provides graduate students with a strong academic and clinical foundation for the holistic treatment of communication disorders in children, adolescents, and adults. Through clinical externships and an individualized capstone project, students have numerous opportunities to gain practical, hands-on experience under the guidance of experienced faculty mentors. Students will benefit from diverse clinical externship opportunities in a range of settings including, medical institutions, early intervention centers, schools, interdisciplinary and private practices.

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

Candidacy for Accreditation: The Master's (M.S.) program in Speech-Language Pathology (SLP) at Yeshiva University is a Candidate for Accreditation (August 1, 2016-July 30, 2021) by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association, 2200 Research Boulevard #310, Rockville, Maryland 20850, 800-498-2071 or 301-296-5700. This is a “pre-accreditation” status with the CAA, awarded to developing or merging programs for a maximum period of five years. Award of candidacy allows the program to matriculate students into the program as it continues to document compliance with accreditation standards for the duration of the candidacy accreditation cycle.

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 – Program Director and Assistant Professor, Graduate Program in Speech-Language Pathology
- Dr. Troy Dargin – Clinical Assistant Professor, Graduate Program in Speech-Language Pathology
- Dr. Michaela Medved – Clinical Assistant Professor, Graduate Program in Speech-Language Pathology
- Dr. Elisabeth Mlawski – Clinical Assistant Professor, Graduate Program in Speech-Language Pathology
- Brittany Palmer – Clinical Assistant Professor and Clinical Supervisor, Graduate Program in Speech-Language Pathology
- Ashley Webb – Clinical Director and Assistant Professor, Graduate Program in Speech-Language Pathology

Curriculum and Degree Requirements

The MS in Speech-Language Pathology curriculum is distinctive. It will prepare you to be a clinician in diverse health-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 Sequence

The full-time master's in Speech-Language Pathology requires 66 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. In addition, students who are interested in working in the NYC public schools should consider taking the elective course, "SLP in the Schools" during Year 1 - Summer Term.

COURSES – YEAR 1		
Fall 1	**Spring 1**	**Summer 1**
● Intro to Clinical Speech-language Pathology (1 credit) ● Anatomy and Physiology of the Speech/Vocal Mechanism (4 credits: 2 cr. course + 2 cr. lab) ● Acoustics and Psychoacoustics (3 credits) ● Child Language Development and Usage (3 credits) ● Audiology for SLP (4 credits: 2 cr. course + 2 cr. lab) ● Professional Issues/Topics in SLP Level 1 (1 credit)	● Child Language Disorders (3 credits) ● Neuromotor Speech Disorders (3 credits) ● Voice Disorders (3 credits) ● Geriatric Dysphasia and Airway Management (3 credits) ● Diagnostic Methods in SLP (2 credits) ● Clinical Externship in SLP Level 1 (1 credit) ● SLP Clinical Case Conferences Level 1 (0 credit)	● Syndromes and Craniofacial Anomalies (3 credits) ● Pediatric Swallow and Airway Management (2 credits) ● Research Methods and Clinical Assessment of Lit. (3 credits) ● Clinical Externship in SLP Level 2 (1 credit) ● SLP Clinical Case Conferences Level 2 (0 credit) ● Optional Elective: Role of SLP in Schools (3 credits)
COURSES – YEAR 2		
Fall 2	**Spring 2**	
● Cognitive and Higher Level Language Disorders (3 credits) ● Aphasia Rehabilitation (3 credits) ● Communicating with Patients and Families (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) ● SLP Clinical Case Conferences: Level 3 (0 credit)	● Stuttering and Related Fluency Disorders (3 credits) ● Speech-Language for Hearing Impaired (3 credits) ● Augmentative and Alternative Communication (3 credits) ● Master Clinician Observations (1 credit) ● Professional Issues/Topics in SLP: Level 3 (1 credit) ● Clinical Externship in SLP Level 4 (1 credit) ● SLP Clinical Case Conferences: Level 4 (0 credit) ● Capstone Project (1 credit)	

Course Descriptions

CSD 5000 Introduction to Speech-Language Pathology
Course focuses on development of treatment plans, establishment of evidence-based treatment objectives, tracking of treatment efficacy, record keeping, ethical professional behavior, and problem solving in a clinical setting.

CSD5100 Professional Issues/Topics in SLP: Level 1
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 and ethical responsibilities will be a central focus of the course.

CSD 5110 Professional Issues/Topics in SLP: Level 2
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 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.

CSD 5120 Professional Issues/Topics in SLP: Level 3
The third level of the Professional Issues/topics in SLP focuses on licensure, coding and billing for services, advocacy for coverage and payment, healthcare regulations/reform affecting our profession, professionalism, ethical conduct, credentialing, and contemporary professional issues.

CSD 5200 Externship: Level 1
This full-time course establishes the fountain of clinical and professional skills necessary for students to participate in off campus clinical community based initiatives and other clinical opportunities as determined by Clinical Director. Students are assigned their first field-based experience at the graduate level from a variety of YU on-campus and YU affiliated clinical settings. Must also enroll in CSD5201.

CSD 5210 Externship: Level 2
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. Must also enroll in CSD5211.

CSD 5220 Externship: Level 3
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. Must also enroll in CSD5221.

CSD 5230 Externship: Level 4
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. Must also enroll in CSD5231. Successfully completion of Externship Level 4 is dependent on the total accrual of 400 clinical contact hours.

CSD 5201 Clinical Case Conference: Level 1
Weekly small group clinical conferences to support and augment the clinical practicum experience.

CSD 5211 Clinical Case Conference: Level 2
Weekly small group clinical conferences to support and the clinical practicum experience.

CSD 5221 Clinical Case Conference: Level 3
Weekly small group clinical conferences to support and augment the clinical practicum experience.

CSD 5231 Clinical Case Conference: Level 4
Weekly small group clinical conferences to support and augment the clinical practicum experience.

CSD 5300 Diagnostic Methods in SLP
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.

CSD 5400 Communicating with Patients and Families
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. Critiquing of videotaped sessions with clients/patients and clinical reports will be included.

CSD 5500 Master Clinician Observations
Course provides problem-based learning using video and audio presentations of complex clinical cases. The Master Clinician course guides the student clinician through a variety of disorders, evaluated and treated by experienced master clinicians, allowing student to gain greater insight on advanced clinical management. Completion of a minimum of three externships prior to this course is required to ensure meaningful observations of specific assessment and intervention principles, including layering and depth of diagnostic assessment by these master clinicians who think “in the box” and “outside the box” for optimum assessment and management of disorders.

CSD 5600 SLP in the Schools
This course explores the organization, management and administration of a school speech-language pathology program. This course one of the required courses for students seeking New York State certification as a Teacher of Students with Speech and Language Disabilities.

CSD 6000 Anatomy and Physiology of the Speech/Vocal Mechanism and CSD 6001 Lab
Study of the anatomical and physiological structures that underlie the vocal mechanism, as well as the basic properties of cells, tissues and systems common to all parts of the body, and examination of disease and pathologic conditions that relate to speech/voice. Lecture is augmented by lab dissection (CSD 6001) at Albert Einstein College of Medicine in which students are exposed to dissections of cadaveric material.

CSD 6100 Acoustics and Psychoacoustics
This course addresses analysis of sound patterns and vocal production, perceptual aspects of acoustic patterns, examination of physiological and acoustic bases of speech, psychological aspects of acoustics, as well as critical analysis of voice quality. Interpretation of acoustic features across the lifespan and across modes of phonation (speaking, singing), both normal and abnormal, will be a central focus of the course.

CSD 6110 Neuromotor Speech Disorders
This course examines neural anatomy of speech, with in-depth evaluation, analysis and remediation of motor speech disorders, including but not limited to dysarthria, apraxia and phonological disorders. Perceptual ratings of speech samples and subjective analysis of speech tendencies in children and adults is emphasized. The importance of research in motor speech disorders will be examined, including “hot topics” in current research for speech disorders across the lifespan.

CSD 6120 Syndromes and Craniofacial Anomalies

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.

CSD 6130 Stuttering and Related Fluency Disorders
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.

CSD 6200 Voice Disorders
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.

CSD 6210 Alaryngeal Speech, Head/Neck Cancer, Endoscopy
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 use of endoscopy by the SLP.

CSD 6300 Pediatric Swallow and Airway Management
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.

CSD 6310 Geriatric Dysphagia and Airway Management
This course provides students with knowledge and resources necessary to effectively evaluate and treat feeding, swallowing and breathing disorders in medically complex adults in medical, school, and home settings. Normal and abnormal anatomy/physiology affecting swallow and airway assessment and management from adult through geriatric. Case analyses, etiologic factors, and review of pertinent research in swallow and airway management are included.

CSD 6400 Child Language Development, Usage and Literacy
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
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.

CSD 6420 Aphasia Rehabilitation
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.

CSD 6430 Cognitive and Higher Level Language Disorders
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.

CSD 6440 Augmentative and Alternative Communication
This course reviews the history and theory of non-speech communication, diagnosis, intervention, and current research; survey of issues pertinent to the use of unaided and aided augmentative and alternative communication, as well as advocacy for those patients. Case analyses, etiologic factors, and review of pertinent research are included. This course offers a detailed investigation of varied populations, implementation of high-tech, low-tech and no-tech solutions, partner training and development of measurable goals.

CSD 6500 Audiology for SLP and CSD 6501 Lab
This course examines the bioacoustics of human communication and hearing including neuroanatomy, anatomy/physiology of the auditory systems, pathology of the auditory systems, acoustic behavior, psychophysical procedures, auditory dysfunction, anatomical and physiological studies associated with different categories of cochlear insult and central auditory nervous system function. Hearing tests and testing instruments, case finding and referral, interpretation of hearing test results, and organization of hearing conservation programs. Course requires CSD6501.

CSD 6510 Speech/Language Intervention for Hearing Impaired
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.

CSD 6600 Research Methods and Critical Assessment of the Literature
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. Review of granting agencies, funding sources, grants and guided experience on grant writing is also included.

CSD 7000 Capstone Project
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 areas of clinical interest.

Admissions Requirements

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
- Official GRE scores for verbal, quantitative, and writing
- Resume
- Personal statement demonstrating a commitment to contribute to and complete the program
- Two recommendation letters
- 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 B or higher by August 1, 2020:

- Speech Science
- Hearing Science
- Phonetics
- Statistics
- Introduction to Speech-Language Pathology - courses that would be accepted are below
- Chemistry or Physics
- Biology
- Social or Behavioral Science

Any grade below a B must be retaken for official acceptance.

Hearing Science

- Speech and Hearing Science (can be counted as a Hearing Science, but not a Hearing Science AND Speech Science)
- Auditory Rehabilitation
- Speech-Language and Hearing Science: Anatomy and Physiology
- Audiology
- Aural Rehabilitation
- The Hearing Mechanism

Speech Science

- Speech-Language and Hearing Science: Acoustics
- Speech and Hearing Science (can be counted as a Speech Science, but not a Hearing Science AND Speech Science)
- Introduction to Hearing Sciences and Acoustics
- Introduction to Speech Science
- Introduction to Acoustic Phonetics

Introduction to Speech-Language Pathology/Communication Science Disorders
Survey of Speech, Language, and Hearing Disorders

- Speech Pathology: Functional Disorders
- Speech Pathology I: Communication Disorders
- Intro to Communication Disorders
- Survey of Communication Disorders
- Nature of Speech-Language Disorders