

Duke Institute for Genome Sciences & Policy (IGSP)

Proposal for a Master of Arts in Bioethics & Science Policy

Submitted to the Graduate School of Duke University

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I. Questions about this proposal

Each of the questions below is addressed in the body of the proposal, but they are also presented here to provide an overview.

- *What is the Master of Arts in Bioethics & Science Policy?*
The Master of Arts in Bioethics & Science Policy is a graduate program that teaches students how to thoughtfully identify, analyze, and propose solutions to ethical and normative problems in science, medicine, technology and policy in order to equip them to work in a wide range of fields where such skills are sought. The program will provide a foundation in the history, philosophy, legal, social, and theoretical approaches to bioethical analysis, as well as an introduction to science and health policy. In addition, the program will offer students the option to focus their studies in specific areas of emerging scientific and ethical complexity to prepare them for the bioethical issues of tomorrow.
- *What are the degree requirements and timing?*
The program will require a minimum of 9 courses (27 credits) and 1 capstone project (9 credits), for a total of 36 credits. The breakdown is as follows: 5 core courses, 4 electives, and 1 capstone project, which includes a choice of completing either a research project or a practicum with a written paper. Full time students can complete the program in 3 semesters, one of which can be during the summer, but it is recommended that students take 1.5-2 years to complete the program—especially students without background or experience in bioethics. The maximum amount of time the program will take is 6 semesters, or 3 years. Students will have the option of selecting a pre-existing focus area, or to develop an individualized, student-designed one based on their interest.
- *Who is the target audience for this program?*
The master's program should attract a variety of students: students earning another degree (such as law or medicine) who wish to specialize in bioethics and science policy; professionals already in the field deciding to go back to school to specialize or alter their career paths; professionals working in industry or academics who need further job-related skills in this area; and recent graduates who wish to increase their skills, knowledge, and employability. The program is best suited for students who already hold an advanced degree, who are earning another degree, or who are seeking to change or enhance their careers through further education.
- *What will this degree prepare students to do?*
Fundamentally, students will gain the ability to analyze complex problems at the intersection of science, technology and ethics. Hospitals, academic institutions, pharmaceutical companies, public health agencies, biotechnology companies, law firms, governmental entities, and other agencies are increasingly looking for professionals trained in this area. An individual with a Master of Arts in Bioethics & Science Policy can attain a variety of jobs, including as a researcher, research or hospital administrator, journal editor, clinical ethicist, investigator, ethics consultant, educator, independent contractor, compliance officer, or IRB coordinator.

- *What will make this program succeed?*

Rapid and exponential progress in the biosciences has broadened both the need and demand for related education in bioethics and science policy. The program in Duke will be distinct in its focus on bioethics and science policy, rather than bioethics alone. This focus better matches both the educational needs of incoming students, the draw for students to the program, and the match between graduating students and job opportunities. Duke's outstanding reputation in the sciences, law, public policy, and business, as well as the numerous interdisciplinary programs at Duke examining issues at the intersection of science and society will enable the program quickly become a top program in the US.

- *Does Duke have sufficient course offerings to support an MA in Bioethics & Science Policy?*

Yes. Bioethics is a highly interdisciplinary field, and Duke has numerous course offerings in a variety of departments and schools that are highly suited for this program, including courses in the law school, the Department of Philosophy, the Sanford School, the Institute for Genome Sciences & Policy, and the Duke Global Health Institute, among others. Existing courses will serve as some of the electives; the core courses, some general electives, and two electives in each track will be developed specifically for the program.

- *Does Duke have enough faculty to teach this program?*

Yes. Relevant faculty have agreed to implement the core courses for the master's program, with the support of their Deans and Institute Directors, and other faculty members have agreed to teach new electives. These faculty members are affiliated with Sanford, the law school, Fuqua, the Divinity School, DTMI, IGSP, DIBS, the Trent Center, and the Department of Philosophy. The program may also hire lecturers, adjuncts, and post-doctoral candidates as needed.

- *How will this program complement or compete with other current Duke programs?*

This program will complement existing Duke programs. It will collaborate with Sanford, the law school, IGSP, DIBS, the Divinity School, the Trent Center, Kenan, the Department of Philosophy, and DGHI on course offerings and curriculum. Although some of these other programs offer classes with bioethics components, none offers a degree program or a curriculum of this magnitude. The Masters of Bioethics & Science Policy curriculum will dovetail nicely with other degree programs, and it will serve as a useful resource, allowing students across disciplines to broaden their education and career readiness.

- *How will this program be funded?*

The program will be initially funded by a capital investment by the University. After the first several years, the program will be self-funded by tuition. The primary costs of the program are faculty salaries and program administration. The program has and will continue to negotiate with departments and centers across Duke to buy faculty teaching time.

II. Rationale for the Program

A. History of Bioethics and Science Policy

Bioethics emerged as a distinct field of study in the 1960's and 1970's, with two dramatic series of events that brought questions of ethics, morals, and medical science to public attention. The first was the revelation of a series of scandals in medical research where human subjects—often unwitting subjects—were treated with little regard to their rights or safety. The most notorious of these was the Tuskegee Syphilis Study, conducted by researchers from the U.S. Public Health Service. Begun in 1932, it included poor and uneducated African-American men with syphilis who were followed for years but often under or untreated by the best available medicines. In 1972, when the details of the study were exposed in newspapers, the resulting public outcry led to more rigorous review of the ethics of using human subjects in research—and ultimately the passage of federal laws to protect research subjects.

A second set of events bringing scientific and ethical conflict to the public's awareness concerned end-of-life care. In the mid-1970's, the case of Karen Ann Quinlan, a 21-year old woman in a persistent vegetative state, became front-page news when her parents went to court to seek control over their daughter's medical treatment over the objections of her physicians. They sought to remove life-sustaining ventilators to enable their daughter—who was in a vegetative state—to “die with dignity.” As the battle between the parents and physicians made front pages of newspapers across the country, the public debated who should control life and death medical decisions, what ethical norms should guide such decisions, and whether the technological imperative of modern medicine had a dark side.

The study of bioethics in universities was originally a concern primarily of philosophy and divinity departments. In 1969, The Hastings Center was founded as an independent, nonprofit research institute to conduct research on fundamental bioethical issues. Two years later, the Kennedy Institute of Ethics at Georgetown University was established to provide research and education on the new medical ethics issues of the day. Both centers recognized the need for interdisciplinary study, as bioethics draws from the law, anthropology, medicine, public policy, and philosophy, among other disciplines.

The field of bioethics has broadened considerably from its initial focus on research and medical ethics. The Ethical, Legal and Social Implications (ELSI) research program, established as part of the Human Genome Project in 1990, has been an important impetus and model for this expansion. Although the Human Genome Project was primarily a scientific endeavor to sequence the human genome, project funds were also allocated for ELSI research because the organizers recognized that the scientific discoveries of the project would raise profound ethical and policy issues. The ELSI research program continues to be funded by NIH today, and “ELSI” types of research programs are being conducted in scientific fields other than genomics.

More recently, with the announcement of the Obama Administration's Brain Research Through Advancing Innovative Technologies (BRAIN) initiative, the importance of bioethics in science policy was made even clearer. The press briefing in the announcement repeatedly made mention of

“ethical” scientific progress, and the President has tasked his Presidential Commission for the Study of Bioethical Issues (PCSB) to carefully analyze the ethical issues that arise with the development of new brain technologies.

To ensure the ethical progress of science policy, leaders in science policy must be trained in the ethical implications of scientific research. And they must be trained in a principled approach to developing scientific progress. Bioethics and science policy go hand and hand, and are of increasing importance in society.

B. Rationale for the program

Advances in the scientific discovery are increasing the demand for advanced education in bioethics and science policy. Until recently, only a handful of programs in the U.S. served these interests. Even now, the demand outstrips programmatic offerings in these fields. Particularly for students already pursuing another graduate degree, training in bioethics and science policy can provide them with the interdisciplinary background in these areas and expand their career opportunities. Duke is uniquely well positioned to expand its offerings in bioethics and science policy, and is geographically well positioned to attract to the program outstanding mid-career professionals and students planning to earn two advanced degrees.

This proposed master’s program differs from current Duke programs that include bioethics components, both in its focus and its scope. The Trent Center examines bioethics primarily in relationship to medicine, the Duke Global Health Institute’s bioethics course is focused on the special needs of global health, and the Law School’s treatment of bioethics is grounded in law and policy. The Kenan Institute offers an undergraduate Focus cluster and an ethics certificate, but those two programs are for undergraduates and focus primarily on the social sciences. The new Master of Arts in Bioethics & Science Policy will dovetail nicely with these other programs, and the presence of the new master’s program will encourage students across disciplines to broaden their education and career readiness.

The Duke MA in Bioethics & Science Policy will offer a foundation in bioethics with the option to concentrate in focal areas of expertise. The program will allow and encourage students to take courses in a wide variety of departments and centers and will welcome students housed in other departments, centers, or institutes who wish to advance their knowledge of bioethics by taking classes in the bioethics program.

The Master’s program could provide an attractive option for dual degree students (seeking both another graduate degree and a MA in Bioethics & Science Policy), or in the future (if separate approval is sought and granted) for joint degree for students pursuing a degree in law, medicine or other advanced degrees. The program will separately seek approval for joint degrees, such as those listed below.

JD/MA: The law has significantly shaped the field of bioethics from its start, through court cases and legislation, and law students planning a career in science policy or health law may choose to earn a joint degree in law and bioethics to increase their knowledge, skills, and employability. This will begin as an ad-hoc option for law students, with the goal of developing a more formalized

joint-degree program over time and through a separate approval process.

MD/MA: Duke Medical School offers its students a unique Third-Year Study Program, during which they have the opportunity to conduct research. Some students choose a “humanities” option and pursue research in medical humanities working with faculty in the Trent Center. Others may pursue a master’s degree in a joint degree program. Through a separate approval process, the MA in Bioethics & Science Policy will seek to expand options for medical students interested in this area. Notably, this potential option complements but does not compete with students who are interested, for example, in the MA in Global Health, as the emphasis of the two programs is entirely different.

III. Relationship to existing programs at Duke and at other institutions

A. Relationship to existing programs at Duke

The **Master of Arts in Bioethics & Science Policy** will offer a solid foundation in ethical theory through a set of core courses. Further, it will offer an option of concentrating in one of three thematic areas—Genomics, Neuroscience, and Impact Ethics—or in an area of choice through an existing Duke program, such as with the Nicholas School or the Global Health Institute. In addition to the formal curriculum, the program will partner with the Trent Center and other campus groups to offer a robust set of auxiliary events, such as lectures, journal clubs, and seminars. Students will have the opportunity to participate in other Duke-sponsored programs, especially during their practicum, such as an externship linked through the Duke in DC program to work in a science policy position. Below is a list of existing programs and their relationship to this program.

The **Institute for Genome Sciences & Policy** and its activities in Genome Ethics, Law & Policy (GELP) have implemented a variety of programs examining ethical and policy issues posed by genomic research, ranging from how sensitive genomic information should be conveyed to research participants and their relatives—to questions about how laboratory discoveries should be translated into clinical medicine in ways that minimize problems and spread the benefits widely and fairly. Programs have included workshops, seminars, journal clubs, and a host of educational offerings, such as an undergraduate certificate, a summer fellows program, and an option for Program II majors. The IGSP, through GELP, houses the Center for Public Genomics, a Center of Excellence in Ethical, Legal, and Social Implications (ELSI) Research, funded by the National Institutes of Health. The Center of Public Genomics explores the value of “open science” norms and practices as well as studying the impact of intellectual property rules on genomic research and patient care, including the controversial practice of patenting genes. The IGSP will be the home unit for this master’s program and will develop the genomics specialization for the program.

Duke University and the School of Medicine house the **Trent Center for Bioethics, Humanities, & History of Medicine**, which aims to promote excellence in scholarship and teaching in medical ethics and the medical humanities. The Center provides an interdisciplinary forum for physicians

and scholars to examine important questions at the intersection of medicine, ethics, and the humanities. Given the ethical and humanistic challenges facing clinicians and investigators, the Center strives to assure that medical ethics is an essential component of medical education. The Center also offers continuing education for medical professionals, faculty, and staff, raising awareness and providing essential skills in the face of challenging issues that arise in practice. Specifically, the Trent Center offers several bioethics classes and programs that are designed primarily for undergraduates and medical students. Some faculty members from the Trent Center will be teaching in the master's program, serving as student mentors, and participating on the Program Faculty Council. Further, the program expects to co-host workshops and other events with the Trent Center; in fact, we are already in discussion about co-sponsoring a journal club to help students and faculty stay current with literature in the field.

The **Center for Health Policy & Inequalities Research** is part of the **Duke Global Health Institute**. The Institute works to reduce health disparities in our local community and worldwide. Recognizing that many global health problems stem from economic, social, environmental, political and health care inequalities, DGHI brings together interdisciplinary teams to solve complex health problems and to train the next generation of global health scholars. DGHI offers a Master of Science in Global Health, which aims to help students develop an understanding of the most important global health concepts and challenges; gain a solid foundation in global health research methods, with a focus on bioethics in cross-cultural settings; and learn to understand, evaluate, and compare health systems from around the world. The Global Health master's program offers joint degrees with law and medicine. The proposed MA in Bioethics & Science Policy program will be partnering with the DGHI by welcoming students in each program to take classes in the other.

Duke's **Kenan Institute for Ethics** is an interdisciplinary "think and do" tank committed to promoting moral reflection and commitment, conducting interdisciplinary research, and shaping policy and practice. It serves as a central node at Duke for analysis, debate, and engagement on ethical issues at and beyond the university. The Institute currently features work on global migration, human rights, regulatory policy, moral attitudes and decision-making, and religions and public life, but it does not focus on bioethics. The Kenan Institute hosts a Focus cluster and offers an ethics certificate for undergraduates. The MA in Bioethics & Science Policy program will partner with Kenan to co-host events pertinent to both groups and to broaden discussions around ethics and bioethics.

The **Duke Institute for Brain Sciences (DIBS)** advances interdisciplinary research and education that transforms our understanding of brain function and translates into innovative solutions for health and society. DIBS was created in 2007 as a cross-school, campus-wide, interdisciplinary Institute with a commitment to building an interactive community of brain science research and scholarship. DIBS encourages innovation and collaborations that transcend the boundaries of traditional disciplines, bringing together a diverse community of academics from the biomedical sciences, social sciences, physical sciences, humanities, law, business, public policy, mathematics, computer science and engineering. Several DIBS faculty will take active roles in this new master's program by teaching classes, serving as student mentors, and participating on the Program Faculty Council. In fact, DIBS and the MA in Bioethics & Science Policy program are collaborating closely on the development of the neuroethics track.

Duke Law School is a top-tier law school whose mission is to prepare students for responsible and productive lives in the legal profession. As a community of scholars, the Law School also provides leadership at the national and international levels in efforts to improve the law and legal institutions through teaching, research, and other forms of public service. At Duke Law School, students and faculty experience academic rigor in an interdisciplinary environment where creativity and innovation rule. The Law School has a number of courses related to bioethics, including courses on sexuality, health ethics, health policy, neuroscience, and intellectual property. In the future, the MA program will seek to develop closer ties with the Law School and to work together to develop a joint-degree program through a separate approval process.

The **Fuqua School of Business** advances the understanding of management through research, putting research knowledge at the service of business and society, and providing the highest quality education for business and not-for-profit leaders worldwide. Fuqua offers sustained excellence in terms of management education, research, and the advancement of management practice, and its Health Sector Management program focuses on health care's most pressing issues. It offers a handful of classes with bioethics content as well as classes with skills building that will be of great benefit to a student in bioethics. Several classes through Fuqua can serve as electives in this program. At least one faculty member from Fuqua will teach a course for this program, and another will serve on the Program Faculty Council.

The **Nicholas School of the Environment and Earth Sciences** is among the world's premier graduate research and professional schools for the interdisciplinary study of the environment, biological, physical, and social sciences. The Nicholas School attempts to understand the earth and the environment, including humans, as an integrated whole. It strives to advance a more sustainable future by strategically focusing its resources on addressing the major environmental issues of our times and by training a new and environmentally informed generation of global leaders. To achieve this vision, the Nicholas School has assembled a unique and talented faculty of world-class researchers and educators spanning all of the relevant physical, life, and social sciences, steeped and actively engaged in their respective disciplines, but also committed to the multi- and interdisciplinary lines of inquiry and collaborations that are at the core of many environmental issues. The school offers a wide array of programs for undergraduate, graduate and continuing educational study; several of these courses include content directly related to the field of bioethics. Students in the Masters of Bioethics & Science Policy program will have the option of designing a concentration in bioethics and environmental issues, taking courses through the Nicholas School.

In addition to the schools, departments and institutes described above, a number of other Duke programs offer classes related to bioethics, including neuroscience, philosophy, and public policy. This new master's program is working closely with the **Department of Philosophy** in the development of several of the core courses, and several faculty in that department will either teach a course, serve as mentors, or serve on the Program Faculty Council. Further, since 2009, Duke has hosted **DUBS**, the **Duke Undergraduate Bioethics Society**. This student-initiated group explores bioethics issues through discussions, speakers, films, and conferences. In 2011 and again in 2013, with the assistance of the Trent Center, DUBS organized a bioethics symposium, featuring Duke faculty and other national experts. DUBS maintains an active presence in Duke undergraduate life and reflects a widespread interest in bioethics among undergraduates, many of whom plan careers in medicine, science, public policy, or law.

B. Relationship to existing programs at other institutions

This program will provide an excellent foundation in the history, law, and philosophy of bioethics and will link this knowledge to both science policy and the complex bioethical challenges of tomorrow. Duke's program will be distinctive in its focus on a wide set of normative issues at the intersection of science and society, and will offer concentrations—"tracks"—in some of the most challenging, complex and cutting-edge bioethical issues of 21st century science, technology, and medicine.

Duke's competitive advantage is its position as a top academic and research university, and its commitment to (and experience with) interdisciplinary scholarship. The field of bioethics is inherently interdisciplinary, and Duke's significant commitment of energy and resources over the past several years to foster interdisciplinary projects makes it a hospitable environment for a bioethics master's program to grow and flourish. A number of programs at Duke already have built into their mission a focus on the intersection of science and ethics and a dedication to interdisciplinary scholarship, most notably the IGSP and DIBS, both of which are key supporters of this program.

In addition, Duke has highly ranked law and medical schools, and the ability to earn both degrees at Duke (either by seeking a dual degree, or, if separate approval is sought and awarded, by the availability of joint degree programs) will likely be particularly attractive to students in both of these schools. Further, Duke's faculty involved with this program will ensure Duke's leadership in the field.

Key Faculty from Duke Institutions

Nita Farahany, JD, PhD, is currently serving on the Presidential Commission for the Study of Bioethical Issues. She is a leading scholar on the ethical, legal, and social implications of biosciences and emerging technologies, particularly those related to neuroscience and behavioral genetics. Dr. Farahany presents her work widely including to audiences at the Judicial Conferences for the Second and Ninth Circuits, the National Judicial College, the American Academy for the Advancement of Science, National Academies of Science Workshops, the American Academy of Forensic Sciences, the National Association of Criminal Defense lawyers, and the American Society for Political and Legal Philosophy.

Hunt Willard, PhD, is the founding Director of the Duke Institute for Genome Sciences & Policy. He is also the Nanaline H. Duke Professor of Genome Sciences, with appointments in the Department of Molecular Genetics and Microbiology and the Department of Biology. He has served in elected leadership positions for the American Society of Human Genetics (president in 2001), the Association of Professors of Human/Medical Genetics, and the Human Genome Organization. He is a former member and chair of the Mental Retardation and Developmental Disabilities Research Committee, former chair of the Mammalian Genetics study section at the National Institutes of Health, and a former member of the Advisory Committee on Genetics, Health and Society for the Secretary of the Department of Health and Human Services. He has also served on review boards for the Howard Hughes Medical Institute, the Simons Foundation,

and the March of Dimes Birth Defects Foundation, and he is currently serving on the Scientific Review Board of Howard Hughes Medical Institute.

Michael Platt, PhD, is the director of the Duke Institute for Brain Sciences, as well as director of the Center for Cognitive Neuroscience and professor of neurobiology, evolutionary anthropology, and psychology & neuroscience. Dr. Platt is an editor of major textbooks in neuroscience and cognitive neuroscience. He is also a past president of the Society for Neuroeconomics. His research has been featured in *The New York Times*, *The Washington Post*, *The Wall Street Journal*, *Newsweek*, and *National Geographic*, as well as on Good Morning America, NPR, CBC, BBC and MTV.

Robert Cook-Deegan, MD, served as Director of Genome Ethics, Law & Policy in the IGSP for 10 years. He has also served as director of the Robert Wood Johnson Foundation Health Policy Fellowship program at the Institute of Medicine (IOM) of the National Academy of Sciences, a Robert Wood Johnson Health Policy Investigator at Georgetown University, and a seminar leader at Stanford-in-Washington. He has also worked at The National Academies and has been a member of the Board of Directors of Physicians for Human Rights. For the past 8 years, he has been the Principal Investigator for the NIH-designated Center of Excellence for ELSI Research P50 Center at Duke. He is also currently involved with the Sanford School Duke in DC program, which focuses on health and science policy.

Philip Rosoff, MD, MA, is the Director of the Clinical Ethics Program at Duke University Hospital. As such, he serves as Chair for both the Hospital Ethics Committee and the Clinical Ethics Consult Subcommittee. He teaches clinical ethics extensively throughout the hospital and has developed specialized curricula for the house staff in the Departments of Medicine and Pediatrics and the Department of Nursing.

The current top master's programs in bioethics include Columbia University, University of Pennsylvania, Emory University, Case Western Reserve University, Northwestern University, and New York University. Each of these programs provides a basic core of classes in foundational bioethical issues but differentiates itself with a particular focus or type of training. For example, Case offers internationally-based short term courses; Emory has a bioethics practicum in a community organization; NYU offers practicum opportunities in New York agencies; and University of Pennsylvania offers a clinical ethics mediation option. Tables 1A, 1B, and 1C provide details about twelve bioethics programs for comparison.

Note: UNC hosts the UNC Center for Bioethics. Their mission is to provide a core facility for collaborative capacity-building in bioethics at UNC. Their activities are largely driven by the research and other interests of their faculty. They name themselves as the intellectual home for crafting educational, research, and policy projects in bioethics, at four levels: across schools and programs of UNC-CH, within NC's bioethics network, in conjunction with the nation's other leading bioethics programs, and around the globe. Although their faculty members teach a handful of classes in the School of Medicine, the College of Arts and Science, and the School of Public Health, they do not offer a degree in bioethics. Their undergraduate group, Carolina Undergraduate Bioethics Scholars (CUBS) has collaborated with DUBS to organize two joint bioethics symposia.

Table 1A: Comparison of Top Bioethics Master's Programs

School	Columbia	Emory	Northwestern	U Penn
Program Length	3-6 semesters or 1 year FT/3 years max	12 months-3 years	5 quarters (1.25 years) min; often 2 years total	1 year minimum
Degree Awarded	MS in Bioethics	MA in Bioethics	MA in Medical Humanities & Bioethics	MBE (Master of Bioethics); MS in Med. Ethics (for academics-2 yrs)
Grantor of Degree	School of Continuing Education	Center for Ethics, degree through Emory Laney Graduate School	School of Medicine, Medical Humanities & Bioethics Program	Dept of Medical Ethics & Health Policy, School of Medicine
Requirements	11 courses/ 36 points: <ul style="list-style-type: none"> • 6 core (3 pts each) • 5 electives • Thesis 	10 courses/30 credits: <ul style="list-style-type: none"> • 6 core (18 credits) • 4 electives (12 credits) • Practicum: community-based • Thesis, exam, or capstone 	10 courses <ul style="list-style-type: none"> • 6 cores • 4 special topics courses • Thesis 	9 Courses: <ul style="list-style-type: none"> • 3 cores • 5 electives • Final project
Core Courses	Philosophy of Bioethics, History of Bioethics, Clinical Bioethics, Global Bioethics, Law & Bioethics, Research Ethics	Foundation of Bioethics I, II, & III, one-credit seminar taken twice, Bioethics Practicum, Thesis	Foundations of Bioethics, Social Science & Medicine, History of Medicine, Practice of Bioethics, Medicine & Law, Literature & Med.	Introduction to Clinical Bioethics, Conceptual Foundations, Rationing or Research Ethics
Elective Sample	Health Law, Health Policy & Analysis, Law & Policy of Homelessness, Sexual Ethics	Public Health Ethics, Neuroethics, Law & Bioethics, Human Rights & Bioethics	None listed	Challenging Clinical Ethics (Mediation), Narrative Ethics, Ethics of Food, Ethics in Mental Health Care
Thesis	Independent work of scholarship	Traditional thesis, exam, OR project	50-80 page paper	research project (publishable quality)
Tracks	Tracks "focus" on neuro, clinical, reproductive, research, environ. ethics	No tracks listed	No tracks listed	Tracks: mediation (separate degree)
Joint Degr.	Joint degrees suggested	MPH, MD, MTS, JD	MD, master's in genetic counseling	MD, JD, LLM, DMD, MSW, MEd, etc.
Course Timing	Varies <ul style="list-style-type: none"> • Electives offered in summer • Thesis due in last semester 	<ul style="list-style-type: none"> • Fall: 3 cores and 1 elective • Spr: 2 cores, practicum, 2 elect. • Summer: 1 elective, practicum 	<ul style="list-style-type: none"> • Fall: 2 cores; 1 lecture series • Winter: 2 cores; 1 lecture series • Spr: 2 cores, 1-2 tutorials; 1 lecture • Summer: Thesis (usually thru fall) 	1-4 courses in fall, spring, and/or summer
Tuition Model	Tuition based on cost/credit: <ul style="list-style-type: none"> • 2012-3: \$1,578/point • 2013-4: \$1,658/point 	Set by graduate school. 2013-4 rates: <ul style="list-style-type: none"> • FT is \$36,800 • PT: \$2,044/credit for acad yr and \$1,533/credit for summer 	Set by graduate school: <ul style="list-style-type: none"> • FT: \$43,380 (3 quarters with 3-4 courses/quarter) • PT: \$5,146/course 	Tuition set by School of Medicine and charged by course: <ul style="list-style-type: none"> • Tuition: \$5,200/course
FT Tuition Cost	For all students: <ul style="list-style-type: none"> • 2012-3: \$56,808 • 2013-4: \$59,688 	\$45,998 for FT in acad yr + 6 summer credits at PT rate; \$58,254 for PT with 24 credits during acad yr + 6 summer	\$48,526 for FT for 3 quarters + 1 course at PT; \$51,460 for PT student	\$47,000 for all students
# Students	45 average; 41 new each year; 75% PT—majority have significant work exp.	17 total; 3-15 per class, many PT and working FT	8-10 each yr; 30 total; many PT students while working & dual degree	100 average; 30 new each year

Table 1B: Continued comparison of Bioethics Master’s Programs

School	Albert Einstein	Case Western Reserve	NYU	Stony Brook
Program Length	1 year FT or up to 5 years PT	1 year FT or up to 3 years PT	1 year or 3 semesters; PT up to 4 years	1-3 years
Degree Awarded	MS in Bioethics	MA in Bioethics, PhD in Bioethics	MA in Bioethics: Life, Health, & Environment	MA, Medical Humanities, Compassionate Care, & Bioethics
School Granting Degree	Albert Einstein College of Medicine and Cardoza School of Law, Yeshiva University	Medical School, Department of Bioethics (apply through School of Graduate Studies)	NYU Center for Bioethics, based in Faculty of Arts & Science	Center for Medical Humanities, Compassionate Care, & Bioethics
Requirements	32 credits: <ul style="list-style-type: none"> • 10 credits from core bioethics & medical humanities + thesis • 22 credits of electives 	9 Courses/ 27 Credits: <ul style="list-style-type: none"> • 2 double cores (12 credits) • Clinical ethics rotation (3 credits) • 4 electives (12 credit hours) 	8-9 Courses/32 Points: <ul style="list-style-type: none"> • 2 core • Electives • Practicum (classes offer 3-4 points each)	30 credits (10 courses): <ul style="list-style-type: none"> • 5 core courses • Capstone course • 5 electives (3 within dept)
Core Courses	Bioethics & Medical Humanities I & II, capstone thesis course	Foundations of Bioethics 1 (double course), Foundations of Bioethics II (double course)	Advanced Introduction to Bioethics, Advanced Introduction to Environmental Ethics	Compassionate Care, Medical Humanities, and the Illness Experience; Landmark Cases in Bioethics; Traditions and Values in Bioethical Conflicts; Special Topics in Biotechnology; Capstone Course
Elective Sample	Empathy in Theory & Practice, Ethical Issues in Reproductive Medicine, Disability and Public Health, Jewish Medical Ethics	Bioethics Dilemmas, Int’l Bioethics Policy & Practice, Ethical Issues in Genetics/ Genomics, Public Health Ethics, Critical Research Ethics	Environmental Ethics, Climate Ethics & the Law, Neuroethics, Health Policy, Life & Death, Cultures of Biomedicine, Sustainable Cities	The Problem of Evil; Disease and Society; Empirical Bioethics: Moral Decision Making; Literature, Compassion, and Medical Care
Thesis	Capstone Thesis Project	“Not yet”	final master’s research paper	Capstone course
Tracks	None listed	Research Ethics	health and environment	None listed; focus on theory, care
Joint Degr.	MD, JD	JD, MSN, MPH, MD, MSSA	BA/MA	
Course Timing	<ul style="list-style-type: none"> • Average of 14 credits/semester • Capstone/thesis over the summer 	<ul style="list-style-type: none"> • 4.5 credits each semester • Finish in 1 academic yr (no summer) 	<ul style="list-style-type: none"> • Fall: 3 courses • Spring: 4 courses • Summer: Practicum and 1 course 	<ul style="list-style-type: none"> • Fall: 4 or 5 courses • Spring: 4 courses • Summer: 1 course • Winter: 0 or 1 (depends on fall)
Tuition Model	MS through College of Medicine. Tuition based on cost/credit: \$1,125/credit	Set by graduate studies: <ul style="list-style-type: none"> • FT: \$37,120 • PT: \$1,546/credit hour 	Set by graduate school and based on cost/point: \$1,437/point	Set by graduate school. <ul style="list-style-type: none"> • FT: \$16,680 (24+ credits) • PT: \$695/credit
Tuition Cost	\$36,000 for all students; \$20,000 if dual degree MD for that year	<ul style="list-style-type: none"> • \$37,120 for FT • up to \$41,742 for PT 	\$45,984 for all students	\$20,850 for FT in acad yr + 2 summer courses paid/credit; \$20,850 for PT
# Students	30 students; mostly PT, 4-5 FT	30 students total; diverse range of ages, many joint degrees	20 students total; diverse range—dual with MD, recent grads, mid-career	25-30 students total; most FT students

Table 1C: Continued comparison of Bioethics Master's Programs

School	Temple	University of Pittsburgh	University of Wisconsin	Wake Forest
Program Length	2 years generally, but can finish in 1 year	1-2 years; usually 18-24 months	Minimum of 1 year, often 1.5 years or more	Minimum 1 year, up to 6 years for PT
Degree Awarded	MA in Urban Bioethics	Interdisciplinary MA in Bioethics	MA in Bioethics; executive-style MA in Bioethics (on line)	MA in Bioethics
School Granting Degree	Center for Bioethics, Urban Health, and Policy	Center for Bioethics and Health Law, part of Medical Center & School of Arts & Sciences	Center for Bioethics and Medical Humanities in Medical College of Wisconsin	Center for Bioethics, Health, and Society; apply through Graduate School of Arts & Sciences
Requirements	32 credits: <ul style="list-style-type: none"> • 17 credits from cores • 15 electives 	30 credits <ul style="list-style-type: none"> • Core courses • 1 elective from list • Electives—min of 6 credits • Clinical practicum I & II • MA thesis project 	30 credits <ul style="list-style-type: none"> • Cores (9 credits) of 3 courses • Electives • Clinical bioethics experience • Master Thesis 	30 credits: <ul style="list-style-type: none"> • 2 Required cores • 2/3 from core list • Electives (12 credits)
Core Courses	Urban Bioethics I & II; Community Engagement; Values, Ethics, and Economics of Health Care Delivery in Urban Communities; Critical Social Science and Urban Bioethics	Philosophy of Medicine, Theoretical Foundations of Applied Ethics, Bioethics	Clinical Topics in Bioethics; Philosophical Bioethics; Law and Bioethics	Bioethics theory, bioethics seminar 2/3 of biomedical research ethics; public policy, medicine and justice; clinical ethics
Elective Sample	Approved electives across university	Gender, Ethics, and the Body; Medical Anthropology; Directed Reading in Bioethics	Ethics & Integrity in Science, Justice and Healthcare, Philosophical Bioethics	Communication Ethics and Bioethics, Bioethics and Religion, Bioethics at the Movies, Neuroethics
Thesis	Thesis project	Thesis	Thesis	Traditional or practicum thesis
Tracks	None listed; program focuses on urban bioethics	Can take a variety of electives depending on interests	Areas of emphasis: clinical, legal, humanities	None listed
Joint degr.	MD, DPT	JD, MD	Not listed	MD, MDiv, JD, BA/BA
Course Timing	Mostly PT with 1-2 courses/sem. Can finish in 1 yr (12-14 fall credits, 12-14 spring credits, 4-8 summer); can finish thesis in more time w/out add'l tuition	Courses can all be taken during the academic yr. Students can register for practicum and thesis during the year but complete them in the summer.	Encourage 2 yrs, but can do in 1 yr: <ul style="list-style-type: none"> • Fall: 12 credits • Spring: 13 credits • Summer: exam, thesis/ paper 	FT: up to 15 credits/semester, then thesis during summer
Tuition Model	core curriculum + 15 credits (\$961/credit) if not dual degree	Set by graduate school: FT: \$31,658; PT: \$1,295/credit	Set by Graduate School of Biomedical Sciences: \$710/credit	Set by grad school. Tuition for 2013-4: FT: \$34,334; PT: \$1,222/credit; \$30 to remain "grad student" to finish thesis
Tuition Cost	Based on credits (varies by dept): <ul style="list-style-type: none"> • \$39,415 without dual degree • can be \$25,000 with dual degree 	\$32,953 for FT in acad year + 1 credit in the graduating term; \$38,850 for PT	\$21,300 for all students	\$34,364 for FT during academic year + thesis during summer; \$36,660 for PT
# Students	15 total; mostly joint degree MD	20 total; many PT & joint degree (MD) students	30 total, mostly PT mid-career professionals	30-35 total; ½ PT and mid-career and ½ early in career

IV. Statement of Resources

A. Business Plan indicating the program expenses and how they will be covered

The University will loan \$725,210 to help launch the master’s program for the initial operating budget. In Year 3, the program will begin to repay the loan through tuition revenue. Below (in Table 2) is a list of program expenses that will be covered by the loan. The 5-year detailed projection is in Appendix A.

Table 2: Program Expenses	
Student-related expenses	Scholarships for Masters students (or comparable work/study)
	Graduate School Per Student Appropriation
Personnel	Teaching
	Teaching assistants and course support
	Faculty Mentors
	Administrative staff
Other Expenses	Facilities and equipment (computers, furnishings, printers, etc)
	Office/operational expenses (office supplies, software, telephones)
	Development/Maintenance of Website
	Marketing Materials (printing and mailing)
	Advertising Expenses
	Travel (incl. recruitment, alumni, employer relations)
	Workshops and Honoraria
	Faculty Research Funds
	Practicum Fees and other Professional Development for Students
	Continuing Education/Professional Development
	Food for business meetings/seminars
	Career Services (monthly lunch w/speaker, career fair, trip to DC)
	Social events/retreats (welcome dinner, open house, graduation)
	Miscellaneous
	Library and subscriptions

B. Review of resources available

1. Personnel. The MA in Bioethics & Science Policy program staff will include a director; an associate director/program administrator; and a staff assistant. All three positions will initially be filled by faculty and staff already affiliated with the University.

The Director will:

- lead the Bioethics & Science Policy Program Faculty Council, which will advise on new potential courses, course evaluations, syllabi, practica, and theses

- oversee the academic integrity of the program, ensuring that curriculum objectives are being met and that program components are sufficiently integrated
- create and maintain relationships with collaborating institutions in the development of practica
- serve as the primary liaison of the program with the Graduate School and with other schools, departments, and programs across campus

The Associate Director, Program Administration will:

- ensure the effective administration of the program, including finances, budget development, and daily operations
- develop policies and processes to ensure that students are well-prepared for all aspects of their fieldwork experience, academically, logistically, physically, intellectually and culturally
- manage the admissions process, including organizing the review of applications and selection of candidates
- promote the program via print and electronic materials
- supervise and help develop staff
- manage space utilization
- plan and implement monthly speaker lunches for bioethics students
- implement joint programs with other schools and departments
- coordinate programs, including workshops and colloquia
- maintain relationships with potential contacts and employers
- develop relationships and secure agreements with other departments involved in the program
- manage academic affairs and student concerns
- initiate, develop, and implement program and curriculum and degree-related policies and procedures as needed and advise students on course selection or connect them to an appropriate faculty mentor
- oversee faculty mentor list/schedule

The Staff Assistant will:

- provide primary staff support for program
- serve as first point of contact for questions and information
- assist with scheduling meetings, visits, and events
- maintain program calendar
- maintain teaching plans and schedules
- field requests for program information
- track student advising and programmatic requirements
- update course catalogs and bulletins
- maintain a database of student information
- coordinate logistics of the DC career fair

2. Faculty. The program will draw primarily from existing faculty at Duke. To do so, the program will either buy time from a faculty member's home department or pay the home department per class, depending on the structure of that department and the nature of the course. Fifteen faculty members will teach the 5 core classes and the 11 new electives, and provide support and mentoring to MA students. Some students may take classes in other departments and will

utilize the faculty already teaching those classes.

Table 3 lists current Duke faculty with expertise in bioethics and bioethical issues, possible courses they could teach, and their willingness to mentor students. The costs to the program are detailed in Appendix A.

Table 3: Faculty		
Faculty Name	Possible Courses	Mentor Students?
Misha Angrist	Investigative Journalism, Narrative Nonfiction and Bioethics (new elective) Nothing About Me Without Me: Case Studies in Patient Activism (new elective)	Yes
Laura Beskow	Ethical Issues in Genomics Research (new elective)	Yes
Shubha Chandrasekharan	Show Me the Money: Global Life Sciences Research, Commercialization and Social Justice (new elective) Genome 508S. Global Health and Genomics Genome 612. Responsible Genomics	Yes
Robert Cook-Deegan	PubPol 590S.02. Cancer and the Genome (existing elective)	Yes
Lauren Dame	Law, Research & Bioethics (core; modification of Law 705. Bioethics) Law 529. Genetics & the Law (existing elective)	Yes
Nita Farahany	Neuroscience, Law and Policy (new elective) Law 584/Genome 584. Genetics and Reproductive Technologies (existing elective)	Yes
Amy Laura Hall	Ethical Issues Represented in Literature and Film, Bioethics and Reproduction, Medical Ethics, or Womanist and Feminist Ethics (new elective)	Yes
Jennifer Hawkins	Foundations of Bioethics & Science Policy (new core)	Yes
Scott Huettel	Neurosci 267. Neuroethics (existing elective, taught with Walter Sinnott-Armstrong)	Yes
Kimberly Krawiec	Sacred or for Sale: Legal, Ethical and Policy Problems in the Oversight and Exchange of	Yes
Ross McKinney	Phil 692S. Bioethics (existing elective) Phil 717S. The Evolution of Bioethics in the 20th	Yes (med students only)
Phil Rosoff	Clinical Bioethics (new core)	Yes

Gopal Sreenivasan	GLHlth 241/Phil 281. Global Bioethics (existing elective) Phil 692S. Bioethics (existing elective) Phil 717S. The Evolution of Bioethics in the 20th Century (existing elective)	Yes
Peter Ubel	Ethics and Policy of Health Care Practice (new elective)	Yes
Kevin Weinfurt	Research Methods in Bioethics (new elective)	Yes
Michael “Buz” Waitzkin	Science, Law & Policy (new core)	Yes
Hunt Willard	Bio 410S. Advanced Approaches to Genome Science Research (existing elective, or modification) Genome Elective (new elective)	Yes
IGSP Fellow	Contemporary Issues in Bioethics (new core, ungraded)	Yes

3. **Finances.** The University will make an initial capital investment in the program. That loan will be repaid in Years 3 and 4 of the program. In addition, IGSP has agreed to provide financial backstopping for the MA program, where necessary.
4. **Space.** The program space will be housed near IGSP, currently planned for CIEMAS (Center for Interdisciplinary Engineering, Medicine and Applied Sciences). In CIEMAS, there will be a designated area for the master’s program, including 7 office spaces dedicated to the administrative staff, a conference room, a staff work room, the use of classroom space for core courses, and areas for students to study and congregate. Given that the MA is an interdisciplinary degree, elective classes will be primarily held in the teaching faculty members’ departments.

C. Statement of additional resources needed

Beyond the loan from the University, and capital investment in retrofitting space in the IGSP for program space, no further resources are presently anticipated.

D. Potential or actual outside funding

No outside funding will be needed.

E. Five-year student, faculty, and resources projections

1. **Students.** Table 4 projects the number of students in the MA program each year for the first 5 years of the program. These projections are based on comparisons with other top programs (see Table 1). It is expected that the program will take 4 years to become self- sustaining based on the projected number of students.

Of the bioethics programs surveyed, the average number of enrolled students is 29, and the range is 10-100 students. The top programs at Columbia and the University of Pennsylvania, respectively, have an average of 45 and 100 enrolled students, and 41 and 30 new students each

year. Numbers of part-time students vary widely; in this region, Wake Forest has 12-14 and Emory has 2-10.

This proposal includes conservative enrollment numbers both initially, and as the program ramps up over time, although it may exceed those targets as the program progresses. The top programs are quite competitive, and the demand exceeds the number of spaces in these programs. For the proposed MA, in Year 1 (2014-2015), the program anticipates a total enrollment of 15 students, including 10 full-time and 5 part-time students. In its first year, with more conservative targets, the Wake Forest program enrolled 10 students. Given the reputation of Duke and the program faculty, its location in the research-triangle-park area in the midst of biotechnology and health care companies, and the demand by students for a program in bioethics and science policy, it is anticipated that the program will quickly gain national and international prominence. In speaking with companies in the region, mid-career professional students who now travel from RTP to Wake Forest would have chosen to enroll in Duke’s program. Potential enrollees from other institutions, such as the State Bureau of Investigation (SBI), would enroll in the Duke program but could not afford to travel to the Wake Forest Program. The enrollment estimates scale to 28 students in Year 2, including 18 new full-time students, 5 new part-time students, and 5 returning part-time students. By Year 3, the program expects to reach a steady-state enrollment of approximately 40 total students, which requires 25 new full-time students enrolling per year, 5 new part-time students, and 10 returning part-time students. This number is on the conservative end of the top programs and more aggressive than the smaller programs.

Table 4: Student Projection					
	Year 1 2014-5	Year 2 2015-6	Year 3 2016-7	Year 4 2017-8	Year 5 2018-9
FT New Students	10	18	25	25	25
PT New Students	5	5	5	5	5
PT Returning Students Yr 2	0	5	5	5	5
PT Returning Students Yr 3	0	0	5	5	5
Total Students	15	28	40	40	40

2. **Faculty.** Table 5 projects the number of faculty involved in the MA program each year for the first 5 years of the program.

Table 5: Faculty Projection					
	Year 1 2014-5	Year 2 2015-6	Year 3 2016-7	Year 4 2017-8	Year 5 2018-9
Duke Faculty Teaching in MA Program	15	16	17	18	19

3. **Resources.** Table 6 projects the financial resource categories of the program each year for the first 5 years. The program will buy faculty time from each faculty member’s home department or pay the department an agreed upon amount per course (currently estimated at \$15,000 for most courses). Once the program’s tuition covers expenses, the program will be in a position to begin to repay its loan. Appendix A separates the expenses into more detail.

As per Duke Graduate School policy, the MA has budgeted for full-time students to pay tuition for 3 full semesters. Tuition (2012-13) at three top bioethics programs—Columbia, Northwestern, and U Penn—is \$56,808, \$51,460, and \$47,000, respectively (see Table 1). In order to be competitive with these top programs and to attract and secure leading candidates, the MA offers a competitive financial model and has budgeted scholarship amounts of 35% of tuition revenues.

Table 6: Resource Projection						
	Pre-launch	Year 1 2014-5	Year 2 2015-6	Year 3 2016-7	Year 4 2017-8	Year 5 2018-9
Total Tuition Revenue	0	817,277	1,530,545	2,321,310	2,411,841	2,505,902
Expenses						
Student Related	0	289,917	541,625	820,198	851,884	884,806
Personnel	238,045	620,776	665,671	753,444	783,313	803,279
Other Expenses	136,000	257,750	290,600	294,600	301,180	318,939
Total Expenses	374,045	1,168,443	1,497,895	1,868,242	1,936,377	2,007,024
Income minus	(374,045)	(351,165)	32,649	453,067	475,463	498,878

V. Students

A. Sources. The Duke MA in Bioethics & Science Policy program will appeal to a variety of students and professionals who wish to further their education and employability in the area of bioethics. Specifically, the degree will appeal to:

- Mid-career professionals working in clinical, pharmaceutical, environmental, or other science-related settings and/or seeking employment in the policy arena. These

professionals vary in age, experience, and background—they range from their late 20's through their 60's; some have worked in one organization for a small number of years while others have had long and varied careers; and their experience ranges from law to medicine to research and beyond. In comparisons to other master's programs, many programs in large cities or in locations with a high number of biotech firms, think tanks, hospitals, etc., including Columbia, Northwestern, and Emory, attract a high percentage of mid-career professionals seeking to earn this degree on a part-time schedule (see Table 1). Further, in conversations with local biotech firms, NGO's, and organizations such as the State Bureau of Investigations, these organizations have indicated a strong interest in such a program for professionals who wish to pursue a degree part-time in the RTP area.

- Current students in law, medicine, or health-related programs. These students are interested in pursuing two degrees simultaneously to specialize within another area, such as within medicine or law. A number of programs attract dual degree and joint degree students, and some programs, such as Temple, specifically focus on those students. Currently, Harvard and Stanford are the two other top programs offering degrees at the intersection of law and bioethics; with the addition of this program, Duke will be able to attract students interested in that intersection.
- Recent graduates interested in bioethics and wanting to increase their skills, knowledge, and employability. Master's programs in bioethics attract young students interested in furthering their education and experience before applying to another degree program, such as in medicine or law. Some of these students also pursue the master's degree to increase their competitiveness for research jobs or fellowships.

B. Application Requirements. All successful applicants must have a degree from an accredited four-year university. Some applicants may have another professional advanced degree, experience in the field of bioethics, and/or plans to earn dual degrees. All applicants must submit the application form, transcripts from all post-secondary schools attended, a CV/resume, 3 letters of recommendations, GRE scores, TOEFL scores for non-English native applicants, a statement of purpose that details the applicant's background, interests, and goals in pursuing an MA in Bioethics & Science Policy, and a 2-page analytical essay about a current issue in bioethics. Applicants will be evaluated based on their academic and professional history, their writing samples, and the degree to which a Duke MA in Bioethics & Science Policy will further their professional goals.

C. Characteristics. Students in this program will have a variety of backgrounds and experiences. While some may already have a professional degree, such as law, medicine, or nursing, others may be simultaneously pursuing another degree. Regardless, students should have a deep interest in bioethics and science policy, some amount of experience in the field, whether in a professional or volunteer capacity, and a willingness to explore these issues at a deeper level. Students will need to be able to work at a fast pace and in a challenging environment, both in terms of the work-load and academic rigor of the curriculum.

D. Opportunities available to graduates. Master's programs in bioethics train students to identify, analyze, and propose solutions to ethical and policy dilemmas in a variety of areas, including compassionate care of patients, mediation of medical care decisions, health inequality, environmental issues, and research ethics. With the growing speed and complexity of scientific

advances, the need for people trained in bioethics is increasing. Hospitals, academic institutions, pharmaceutical companies, public health agencies, biotechnology companies, law firms, governmental agencies, clinical research programs, and other entities are looking for professionals trained in this area. Because the range of issues addressed by bioethics is as broad as science and technology, there is a wide range of potential types of employment.

- Mid-career professionals: Many current professionals, such as physicians, nurses, lawyers, and researchers earn the master's degree to enhance their existing skills and to open new opportunities in their fields. Recent graduates in other programs have obtained jobs including: lecturer of bioethics and the law, ethicist internist, attorney at NIH or DHHS, attorney in a department of welfare, editor of a health or law journal, physician who provides ethics education and consultations, palliative medicine physician, hospital administrator, and patient advocate. In addition to these opportunities, with Duke's focus on science policy, graduates of this MA program will also be better positioned to enter the arena of science policy (including lobbying) and work in a variety of biotech firms, thinktanks, NGO's, and governmental agencies.
- Students pursuing multiple degrees: For example, law students with an MA in Bioethics have pursued IP law, health law, regulatory affairs positions with organizations like the FDA or NIH, and jobs requiring legal counsel to have a scientific background. Medical students with an MA in Bioethics tend to pursue IRB work, teach ethics, work in palliative care, and/or provide ethics consults as part of their medical work.
- Recent graduates: These students earn the degree soon after completing an undergraduate degree to increase their employability, enter into jobs involving science policy, and/or to enhance their chances of acceptance into top degree programs in other related fields. In looking at other programs, many recent graduates go on to pursue an advanced degree in medicine, law, or another field. Those who choose to enter the workforce may attain a variety of jobs, including as a research assistant or aide, science educator, research project coordinator, or program director. Others pursue fellowships to further their experience, such as an ethics fellowship in a bioethics center or hospital.

Appendix E lists jobs attained by graduates of a sampling of existing masters of bioethics programs.

Although the degree is usually not recommended to be a terminal degree, Duke offers concentrations in several areas that will provide a solid foundation for gaining employment in specific areas for those students who choose to earn the degree as a terminal degree.

VI. Vision

Our goal is to create a premier Master of Arts in Bioethics & Science Policy program at Duke that will train future leaders in the field. Our vision is of a degree program that prepares its graduates to help scientists, policymakers, researchers, and the public understand and address the complicated policy issues that arise at the interface of science, technology, culture, and society. In addition to providing training in the important traditional concerns of bioethics, the program will also focus on new and emerging areas of science and the ethical and policy issues they might raise. Our program will be forward-looking to anticipate new challenges and to produce graduates with the skills and knowledge to address those challenges.

The goals for the first five years of the program include:

- Create an integrated and intellectually deep set of foundational courses in bioethics
- Create pathways for students to concentrate in key thematic areas to ensure depth of knowledge, in addition to breadth of knowledge
- Expand the number of electives as student interest and scientific advances dictate
- Create a vibrant set of auxiliary activities for students as way of both enhancing the educational opportunities in the program, and bring in additional faculty, scholars, and researchers from across campus
- Assist graduates in entering significant positions with think tanks, government agencies, research institutions, hospitals, and other organizations
- Cultivate a growing network of alumni as a resources for students and the program

VII. Degree Requirements

Duke will require a minimum of 36 credits for an MA in Bioethics & Science Policy, which is similar to most bioethics master’s programs. The MA in Bioethics & Science Policy can be earned in 1 year on a full-time basis (3 full semesters) or up to 3 years (6 semesters) on a part-time basis. The credits include a capstone project. The Duke requirements will be broken down in the following manner:

- 5 required core classes (15 credits)
- 4 elective classes, one of which must be a biostatistics or methodology course* (12 credits); students may select electives from an extensive list of options or may choose to concentrate by choosing electives from one of several “tracks.”
- 1 Capstone Project (9 credits): final paper or practicum with a written analysis.

Core courses (15 credits total)	Electives (12 credits total)		Capstone Project (9 credits)
<ul style="list-style-type: none"> • Foundations of Bioethics & Science Policy (3 credits) • Clinical Bioethics & Policy (3 credits) • Law, Research & Bioethics (3 credits) • Science Law & Policy (3 credits) • Contemporary Issues in Bioethics & Science Policy (2 semesters; 1.5 credits/semester) 	<p><u>General degree</u></p> <ul style="list-style-type: none"> • Course in biostatistics or methodologies* • 3 other electives 	<p><u>Optional Concentration</u></p> <ul style="list-style-type: none"> • 3 electives total in concentration, including: <ul style="list-style-type: none"> ○ Course in biostatistics or methodologies* ○ Background course in concentration* • 1 general elective 	<ul style="list-style-type: none"> • Work with advisor to choose a topic • Decide to complete a practicum or a research paper/project • Participate in the practicum or research project • Analyze bioethics issues & experience • Write research or practicum paper

*Not required for students with relevant professional experience or previous course-work

A. Core Courses:

- Foundations of Bioethics & Science Policy
- Clinical Bioethics & Policy
- Law, Research & Bioethics
- Science Law & Policy
- Contemporary Issues in Bioethics & Science Policy (ungraded)

Table 8: Schedule of Core Offerings
1st Semester Foundations of Bioethics & Science Policy Law, Research & Bioethics Contemporary Issues in Bioethics & Science Policy (part 1)
2nd Semester Clinical Bioethics & Policy Science Law & Policy Contemporary Issues in Bioethics & Science Policy (part 2)

B. Electives

In addition to 5 core courses, students will take 4 courses from among a wide range of electives. One of the electives must be a biostatistics or methodology class (not required for students with relevant professional experience or previous course-work), with the remaining electives to be chosen by the student in consultation with his or her faculty advisor. Below is a list of possible electives drawn from pre-existing courses. All faculty members for the courses below are aware of the proposed program and have graciously agreed to accept MA in Bioethics & Science Policy students into their classes.

Existing electives:

- Biology 554. Genomic Perspectives on Human Evolution. Instructor: Wray
- CRP 253. Responsible Conduct of Research. Instructor: McKinney
- Envir 538/GIHLth 538/PubPol 582. Global Environmental Health. Instructor: Pattanayak
- Ethics 360S. Civic Engagement: Reflection and Transformation. Instructor: Prasad.
Undergraduate course.
- Genome 508S. Global Health and Genomics. Instructor: Chandrasekharan.
- Genome 584/Law 584. Genetics and Reproductive Technologies. Instructor: Farahany
- Genome 612/GIHLth/PubPol 634. Responsible Genomics. Instructor: Chandrasekharan
- GIHLth 540/PubPol 638. Global Health Ethics: Interdisciplinary Perspectives. Instructor: Whetten
- HlthMgmt 717: Economics and Management of the Pharmaceutical Industry. Instructor: Ridley and Moe

- Law 347. Healthcare Law & Policy. Instructor: Richman
- Law 527. Access to Medicines: Intellectual Property and Global Public Health. Instructor: Reichman
- Law 529. Genetics and the Law. Instructor: Dame
- Law 774.01 Taboo Trades & Forbidden Exchanges. Instructor: Krawiec
- Phil 503S. Contemporary Ethical Theories. Instructor: Flanagan or Wong
- Phil 539S/ AAAS 580S. Race Theory: Biological Classification and Moral Implications. Instructor: Brandon
- Phil 510S. Adversarial Ethics. Instructor: Norman
- Phil 541S/Hist 577S. Historical and Philosophical Perspectives on Science. Instructor: Janiak
- Phil 555S/Neurosci 555S. Topics in Philosophy of Mind. Instructor: Neander
- Phil 634S/Biology 555S. Problems in the Philosophy of Biology. Instructor: Brandon, Neander, Rosenberg
- Phil 692S. Bioethics. Instructor: McKinney or Sreenivasan
- Phil 753S. Principles in Cognitive Neuroscience I. Instructor: Cabeza
- Phil 754S. Principles in Cognitive Neuroscience II. Instructor: Cabeza
- Phil 950S. Neurophilosophy. Instructor: Flanagan
- Psy 608S. Gender, Pain, and Coping. Instructor: Keefe
- Psy 609S. Psychosocial Determinants of Health. Instructor: Richman
- Psy 672S. Cognitive Neuroscience of Memory. Instructor: Cabeza
- Psy 780S. Foundations of Behavioral and Computational Neuroscience. Instructor: Williams or Bilbo
- PubPol 590S.02. Cancer and the Genome. Instructor: Cook-Deegan
- PubPol 640. Value for Money in Health Care. Instructor: Vigdor
- PubPol 642S. Designing Innovation for Global Health. Instructor: So
- PubPol 825. Topics in Health Policy. Instructor: Taylor
- Sociol 641S. Proseminar in Medical Sociology: Social Determinants of Health or Health in the Life Course Perspective (alternates each year). Instructor: George
- WomenSt 519S. Topics in Sexuality and Gender Studies. Instructor: Finucci

One distinctive feature of this program is the opportunity for students to select a topical area in which to concentrate. These concentrations represent existing or emerging areas of knowledge that pose fundamental, complex, and difficult questions about the relationship between science, ethics, and society. For students seeking a concentration, electives should be selected primarily from that area of concentration. Specifically, they should take a biostatistics or methodology course, an introductory course in their concentration, and at least 1 other elective in the concentration. In addition, their capstone project should be related to the area of concentration.

Foundation, or background, courses are required for each of the areas of concentration in order for students to gain sufficient scientific knowledge to work on bioethical issues in the area. Students with sufficient experience or prior education do not need to take the background course.

Below is a list of possible electives for the three concentrations. This list includes both “existing electives”, or courses currently offered at Duke that fit in the concentration (the full list of existing electives is above), and “new electives”, or courses designed specifically for the proposed master’s program.

- Genomics. As genomics moves from the era of sequencing to an era of translation into clinical use, we can expect challenges to current definitions of “normal”, disease, race, and behavioral traits.
 - New Electives.
 - Foundation Class. Instructor: IGSP fellow.
 - Genomics. Instructor: Hunt Willard.
 - Existing Electives.
 - Genome 584/Law 584. Genetics and Reproductive Technologies.
 - Biology 554. Genomic Perspectives on Human Evolution.
 - Genome 612/PubPol 634. Responsible Genomics.
 - Law 529. Genetics and the Law.
 - Phil 539S/ AAAS 580S. Race Theory: Biological Classification and Moral Implications.
 - Phil 634S/Biology 555S. Problems in the Philosophy of Biology.
 - PubPol 590S.02. Cancer and the Genome.

- Neuroscience. As scientists gain an increased understanding of the human brain and develop technologies to “look inside” the brain, what will it mean for our concepts of free will, criminal intent and culpability, decision-making, and social behavior?
 - New Elective
 - Neuroscience, Law and Policy. Instructor: Farahany
 - Existing Electives
 - Neuroethics. Instructor: Huettel, Sinnott-Armstrong
 - Neurosci 555S/Phil 555S. Topics in Philosophy of Mind.
 - Phil 950S. Neurophilosophy.
 - Phil 753S. Principles in Cognitive Neuroscience I.
 - Phil 754S. Principles in Cognitive Neuroscience II.
 - Psy 608S. Gender, Pain, and Coping.
 - Psy 609S. Psychosocial Determinants of Health.
 - Psy 672S. Cognitive Neuroscience of Memory.
 - Psy 780S. Foundations of Behavioral and Computational Neuroscience.

- Impact Ethics: A track to enable students to develop the tools and understanding of investigative journalism, humanities scholarship, and community engagement/citizen science to bear on ethical and policy questions in science and health policy.
 - New Electives
 - Investigative Journalism, Narrative Nonfiction and Bioethics. Instructor: Angrist, PhD, MFA & Duncan Murrell, MSJ
 - Show Me the Money: Global Life Sciences Research, Commercialization and Social Justice. Instructor: Chandrasekharan

- Nothing about Me without Me: Case Studies in Patient Activism. Instructor: Angrist, PhD, MFA
- Sacred or for Sale: Legal, Ethical and Policy Problems in the Oversight and Exchange of Human Biological Materials. Instructor: Kimberly D. Krawiec, JD
- Existing Electives
 - Ethics 360S. Civic Engagement: Reflection and Transformation.
 - Genome 508S. Global Health and Genomics.
 - Genome 584/Law 584. Genetics and Reproductive Technologies.
 - GHIHth 540/PubPol 638. Global Health Ethics: Interdisciplinary Perspectives.
 - HIHthMgmt 717: Economics and Management of the Pharmaceutical Industry
 - Law 347. Healthcare Law & Policy.
 - Law 527. Access to Medicines: Intellectual Property and Global Public Health.
 - Law 774.01 Taboo Trades & Forbidden Exchanges.
 - Phil 510S. Adversarial Ethics.
 - PubPol 634.01/GHIHth/Genome 612. Responsible Genomics.
 - PubPol 640. Value for Money in Health Care.
 - PubPol 642S. Designing Innovation for Global Health.
 - PubPol 825. Topics in Health Policy.
 - Sociol 641S. Proseminar in Medical Sociology: Social Determinants of Health or Health in the Life Course Perspective
- Individualized, student-designed concentration. Students may design a concentration with the guidance of the faculty director or their mentor. Possible options include Environmental Ethics, Divinity and Medical Ethics, Global Bioethics, and Clinical Bioethics and Health Policy. Courses may be selected from the comprehensive course list above, and additional courses will be approved through the faculty council.

C. Capstone Project

The MA requires an independent capstone project. This project will be either (1) a research project focusing on a subject of interest in bioethics, including the history and analysis of modern issues related to the subject or (2) a practicum, with a written report analyzing the experience and integrating concepts learned in the program. In accordance with Graduate School policies, both options will demonstrate that the student has acquired extensive knowledge of current thinking in bioethics; has collected, synthesized, reported, and critically reflected on these issues; and has developed competence in scholarly writing and procedures.

For students choosing the practicum option, the MA program will partner with other Duke departments offering opportunities already established. For example, someone interested in bioethics policy could participate in the Duke in DC program, and a student who wants to explore clinical bioethics may coordinate with the Trent Center.

By February 1 of their first year, students will submit a two-page proposal for their capstone project. This proposal will be reviewed by the student's mentor and by the Faculty Director of the program. After the project is completed, a faculty committee comprising of three faculty members of the graduate school, including the student's mentor, will be convened to approve the project.

D. Extra-curricular Offerings

The program will offer a host of workshops and programs to deepen student understanding of the field, help students consider career options, and connect students with other departments on campus. These extra-curricular offerings will include a monthly Bioethics Journal Club, monthly career luncheons, joint workshops with the Trent Center and other Duke entities, and a yearly career fair in Washington, D.C. A faculty member has already agreed to spearhead the journal club, and the program staff will organize the monthly career luncheons and the career fair to encourage students to meet key stakeholders in D.C.

VIII. Degree Timing

Below are examples of three different timing options for students. Two core courses are offered each fall, and two core courses are offered each spring. This schedule allows for part-time students to take one core class each semester; the cores have no pre-requisites. Further, the methods course is offered each fall to accommodate both full-time and part-time students who need to take this course before taking other courses in a concentration. The “Contemporary Issues” course is offered in both fall and spring; all students must take 2 semesters of that course and can take it within a part-time or full-time schedule.

Table 9: Sample Schedule for Students Completing the MA in 1 year, or 3 semesters		
1 st Semester	2 nd Semester	Summer
<ul style="list-style-type: none"> • Foundations of Bioethics & Science Policy • Law, Research & Bioethics • Contemporary Issues in Bioethics & Science Policy (part 1) • Elective (methodology course) 	<ul style="list-style-type: none"> • Clinical Bioethics & Policy • Science, Law & Policy • Contemporary Issues in Bioethics & Science Policy (part 2) • Elective • Elective 	<ul style="list-style-type: none"> • Capstone Project

Table 10: Sample Schedule for Students Completing the MA in 1.5 years, or 4 semesters		
Year 1		
1 st Semester	2 nd Semester	Summer
<ul style="list-style-type: none"> • Foundations of Bioethics & Science Policy • Law, Research & Bioethics • Contemporary Issues in Bioethics & Science Policy (part 1) • Elective (methodology) 	<ul style="list-style-type: none"> • Clinical Bioethics & Policy • Science, Law & Policy • Contemporary Issues in Bioethics & Science Policy (part 2) • Elective 	<ul style="list-style-type: none"> • Capstone Project
Year 2		
1 st Semester		
<ul style="list-style-type: none"> • Finish Capstone Project • Elective • Elective 		

Table 11: Sample Schedule for Students Completing the MA in 3 years, or 9 semesters for part time students		
Year 1		
1 st Semester	2 nd Semester	Summer
<ul style="list-style-type: none"> • Foundations of Bioethics & Science Policy • Contemporary Issues in Bioethics & Science Policy (part 1) 	<ul style="list-style-type: none"> • Science, Law & Policy • Contemporary Issues in Bioethics & Science Policy (part 2) 	<ul style="list-style-type: none"> • Elective
Year 2		
1 st Semester	2 nd Semester	
<ul style="list-style-type: none"> • Elective (Methodology Course) 	<ul style="list-style-type: none"> • Clinical Bioethics & Policy 	<ul style="list-style-type: none"> • Elective
Year 3		
1 st Semester	2 nd Semester	
<ul style="list-style-type: none"> • Law, Research & Bioethics 	<ul style="list-style-type: none"> • Elective 	<ul style="list-style-type: none"> • Capstone Project

IX. Descriptions of new courses and identification of teaching faculty

A. **Core Courses:** All the core courses need to be developed and instituted for the master’s program.

- **Foundations of Bioethics & Science Policy:** An introduction to ethical theories and bioethical and policy decision-making, as well as critiques of mainstream theories. The focus will be on understanding ethical theories and developing the ability to apply theoretical tools to analyze normative and policy issues that arise in medicine, science, and policy choices. Faculty: Jennifer Hawkins, PhD, Department of Philosophy/Trent Center
- **Clinical Bioethics & Policy:** An examination of the leading issues in clinical bioethics and policy, especially those that arise in the context of clinical decision-making and the doctor-patient encounter. The focus will be on the ethical dilemmas faced by medical providers, patients, and their families—and how such issues are analyzed, what values are considered, and how disputes are resolved. Topics will include end of life care; withdrawal or refusal of life-sustaining treatment; abortion and reproductive ethics; pediatric ethics; transplantation; and rationing of scarce drugs or resources. Faculty: Phil Rosoff, MD, Trent Center
- **Law, Research & Bioethics:** An examination of the relationship between the law and bioethical issues, particularly in research and medical contexts. The course will cover the history of human subject protections, current regulatory and statutory issues in research, and legal decisions governing informed consent, confidentiality, privacy, and other issues. Faculty: Lauren Dame, JD, MPH
- **Science, Law & Policy:** Where does the money for R&D come from? How do new findings from neuroscience and genomics pose new questions for law and policy? What is the history of government funding for research, and how did US science policy emerge after World War II? How did academic institutions become hotbeds of research, and how did the idea of the "market university" fundamental to innovation and economic growth emerge? How will the law contend with findings about brain science from functional imaging? Will neuroscience change conceptions of self, guilt and innocence, and culpability in criminal law? How will ubiquitous use of genomic technologies change policy? Will prospective parents increasingly

make decisions about what sort of people there should be, based on genomic information and imaging technologies? Faculty: Michael Waitzkin, J.D.

- **Contemporary Issues in Bioethics & Science Policy:** This ungraded seminar will consider a variety of contemporary issues in bioethics and science policy, introducing the students to cutting edge developments in science, medicine, and technology as well as the difficult ethical questions they raise. This two- semester course will meet every other week and will feature guest speakers working in “hot” areas of research and scholarship. The course will begin with topics in genomic sciences, neuroscience, race and sex, and the growth of “Big Data,” with additional topics to follow. Faculty: Guest speakers; coordinated by the post-doc hired by the program every 2 years

B. Electives

Table 12 outlines the number of graduate electives currently offered at Duke with bioethics and science policy content (a full list is in Appendix B); the number of new electives that will be developed in the first 5 years specifically for the program; and the resulting total number of electives available. Of the existing graduate courses with bioethics and science policy content, 33 will be specifically listed as approved electives; those courses are included in the elective list in Section VIIB above. Undergraduate Duke courses with bioethics content are listed in Appendix C. The 11 new electives that are being developed in the first year are as follows:

1. Ethics and Policy of Health Care Practice. Faculty: Peter Ubel
2. Neuroscience, Law and Policy. Faculty: Nita Farahany
3. Genomics Elective. Faculty: Hunt Willard
4. Basic Science, Genomics. Faculty: Hunt Willard
5. Show Me the Money: Global Life Sciences Research, Commercialization & Social Justice. Faculty: Shubha Chandrasekharan
6. Investigative Journalism, Narrative Nonfiction and Bioethics. Faculty: Misha Angrist
7. Nothing About Me Without Me: Case Studies in Patient Activism. Faculty: Misha Angrist
8. Sacred or for Sale: Legal, Ethical and Policy Problems in the Oversight and Exchange of Human Biological Materials. Faculty: Kimberly Krawiec
9. Ethical Issues in Genomics Research. Faculty: Laura Beskow
10. Research Methods in Bioethics. Faculty: Kevin Weinfurt
11. Bioethics and Reproduction. Faculty: Amy Laura Hall

Table 12: Elective Courses					
	Year 1 2014-5	Year 2 2015-6	Year 3 2016-7	Year 4 2017-8	Year 5 2018-9
Current graduate-level courses at Duke that can serve as electives*	63	74	75	76	77
New electives developed for Bioethics	11	1	1	1	1
Total electives	74	75	76	77	78

*In addition, there are currently 77 undergraduate-level courses at Duke that could serve as electives (students may take up to 2 undergraduate classes as electives)

X. Curriculum vitae of faculty who will participate in the program

The CV's for the following faculty members are in Appendix F.

Misha Angrist, PhD, MFA

Assistant Professor of the Practice, IGSP

Bioethics Specialty/Focus: genomes and society, personal genomics

Laura Beskow, PhD

Assistant Research Professor, IGSP

Bioethics Specialty/Focus: ethics and policy issues related to human subjects in large-scale genomic research and translation

Shubha Chandrasekharan, PhD

Assistant Research Professor, IGSP

Bioethics Specialty/Focus: Genomics and global health, commercialization of technologies, intellectual property, access to biomedical products

Robert Cook-Deegan, MD

Research Professor of Public Policy, Medicine, and Biology

Bioethics Specialty/Focus: ethics and policy of genomics, history of genomics, global health, science and health policy, intellectual property in life sciences, and health research policy

Other Bioethics Experience: Author of *The Gene Wars: Science, Politics, and the Human Genome*; member of the Board of Directors, Physicians for Human Rights, 1988-1996; past director of Genome Ethics, Law & Policy in IGSP; PI of Center for Public Genomics P50 grant

Lauren Dame, JD, MPH

Senior Lecturing Fellow, Law and IGSP

Bioethics Specialty/Focus: bioethics, genetics, biomedical research and the protection of human subjects, healthcare policy, and the effects of technology on privacy

Other Bioethics Experience: Associate Director for Genome Ethics, Law and Policy

Nita Farahany, JD, PhD

Professor of Law, Professor of Genome Sciences & Policy, Professor of Philosophy

Bioethics Specialty/Focus: ethical, legal, and social implications of biosciences and emerging technologies, particularly those related to neuroscience and behavioral genetics

Other Bioethics Experience: Member, Presidential Commission for the Study of Bioethical Issues

Amy Laura Hall, MDiv, PhD

Associate Professor of Christian Ethics

Bioethics Specialty/Focus: theological ethics, sex and gender ethics, medical ethics, bioethics and reproduction

Other Bioethics Experience: steering committee of GELP, Duke Medical Center IRB, Ethics Consultant to the VA in Durham, Bioethics Task Force of United Methodist Church

Jennifer Hawkins, PhD

Associate Research Professor, Philosophy

Bioethics Specialty/Focus: research ethics, nature of coercion and individual decision-making, informed consent, well-being, quality of life

Scott Huettel, PhD

Director, Duke Center for Interdisciplinary Decision Science Center for Cognitive Neuroscience

Bioethics Specialty/Focus: Brain & Society; systems responsible for economic and social decision making

Other Bioethics Experience: DIBS faculty and investigator, DIBS executive board

Kimberly Krawiec, JD

Professor of Law, Duke

Bioethics Specialty/Focus: Impact Ethics

Alex Rosenberg, PhD

Chair and R. Taylor Cole Professor of Philosophy, Co-director of the Center for Philosophy of Biology

Bioethics Specialty/Focus: philosophy of social sciences, economics, and biology

Philip Rosoff, MD

Professor of Pediatrics and Pediatrics-Hematology/Oncology in the School of Medicine, Director of Clinical Ethics at Duke University Hospital, Chair of Duke Hospital's Ethics Committee

Bioethics Specialty/Focus: clinical ethics with a concentration in medical decision-making including equitable allocation of scarce resources (rationing)

Peter Ubel, MD

Professor of Business Administration and Medicine, Professor of Public Policy

Bioethics Specialty/Focus: areas in which policies and management practices intersect with clinical care: informed consent, shared decision making, and health care cost containment

Other Bioethics Experience:

Kevin Weinfurt, PhD

Professor in Psychiatry and Behavioral Science in the School of Medicine

Bioethics Specialty/Focus: clinical research ethics, psychology of decision making and the communication of uncertainty, informed consent, conflicts of interest in research, methods for measuring and analyzing patient-reported outcomes, and research design and statistics

Michael "Buz" Waitzkin, JD

Senior Fellow, Health Sector Management Program, Fuqua School of Business

Bioethics Specialty/Focus: biomedical research, medical genetics research, health management

Hunt Willard, PhD

Director, Duke Institute for Genome Sciences & Policy
 Nanaline H. Duke Professor of Genome Sciences
 Bioethics Specialty/Focus: impact of findings in human genetics and genomics on society, public policy, and individual health—with projects focused on translational genomics, personal genomics, genomic and personalized medicine, science and society, and sports genetics

XI. Statement of support from dean and additional clearances

See letter of support from Huntington Willard, PhD in Appendix D

XII. Student learning outcomes assessment

A. Learning outcomes. The MA program will assess student learning outcomes on a regular basis through course assignments, discussions, and final course grades. The Program Faculty Council will meet at least 3 times each year to assess the courses and the learning outcomes and to adapt the curriculum to continually improve outcome attainment. Table 13 details the bioethics program’s learning outcomes, learning opportunities, and evaluation tools.

Table 13: Learning Outcomes		
Learning Outcome	Learning Opportunity	Evaluation Tools
Understand the ethical theories that have shaped bioethical analysis; identify normative issues; assess implications of different ethical theories	Foundations of Bioethics & Science Policy	Course assignments and final grade
Understand the culture in which medical decisions are made; identify issues encountered in clinical practice; identify the stakeholders in medical decision-making; apply ethical principles to resolve disputes	Clinical Bioethics & Policy	Course assignments and final grade
Understand how science policy is created; recognize the ways policy is shaped by law; identify specific issues addressed by legislation; ascertain how ethical concerns are and are not considered in different stages of policymaking	Science Law & Policy Law, Research, & Bioethics	Course assignments and final grade
Identify key laws and regulations that govern human subject research; understand how to protect human subjects; analyze the ethical principles of research and the translation of principles into legal rules	Law, Research, & Bioethics	Course assignments and final grade
Understand the interaction of science/technology and ethics/culture in emerging areas of science	Science Law & Policy Contemporary Issues in Bioethics	Course assignments and final grade for Science Law & Policy
Understand contemporary issues in bioethics,	Contemporary Issues in	Course assignments

including Big Data, and the ethical and social issues modern technology raises across scientific disciplines	Bioethics & Science Policy Foundation courses for concentrations	and final grade in foundation courses
Identify, analyze, and critically reflect on a specific issue in bioethics	Design & implementation of research paper or practicum	Research or practicum paper

B. Program Faculty Council. The MA in Bioethics & Science Policy program will engage a faculty advisory council, comprised of faculty representing a variety of coordinating departments and units, including the Law School, Trent Center, Sanford School, Global Health Institute, and the Kenan Institute. This council will be responsible for reviewing the learning outcomes, providing input into the curricular aspects of the program, and reviewing faculty appointments and evaluation procedures.

Council Members

- Nita Farahany, J.D., Ph.D. (Also Director of the program and head of the Program Faculty Council)
- Lauren Dame, JD
- Ross McKinney, Jr., MD
- Philip Rosoff, MD
- Alex Rosenberg, PhD
- Charmaine Royal, PhD
- Kevin Schulman, MD
- Suzanne Shanahan, PhD
- Gopal Sreenivasan, PhD
- Peter Ubel, MD
- Kevin Weinfurt, PhD
- Hunt Willard, PhD

XIII. Endorsements

Appendix D contains letters of support. The list of letters is below.

Internal Letters of Support

- Catherine Gilliss, Dean, Duke School of Nursing
- Amy Hall, Associate Professor of Christian Ethics
- Jennifer Hawkins, Faculty, Philosophy Department
- Richard Hays, Dean, Divinity School
- David Levi, Dean, Law School
- Ross McKinney, Director, Trent Center for Bioethics, Humanities & History of Medicine

- Michael Platt, Director, Duke Institute for Brain Sciences
- Alexander Rosenberg, Chair, Department of Philosophy
- Suzanne Shanahan, Acting Director of the Kenan Institute for Ethics
- David Toole, Associate Dean, Divinity School
- Peter Ubel, Faculty, Fuqua
- Michael Waitzkin, Senior Scholar, Fuqua
- Kevin Weinfurt, Faculty, DCRI
- Huntington Willard, Director, Duke Institute for Genome Sciences & Policy