Ministry of Healthcare of Ukraine
Poltava State Medical University

Department of physics

SYLLABUS

LIFE SAFETY; BASES OF BIOETHICS AND BIOSAFETY

(title of the academic discipline)

selective discipline

(compulsory / selective discipline)

level of higher education	the second (master's) level of higher education
field of knowledge	22 «Healthcare»
specialty	222 «Medicine»
academic qualification	Master of Medicine
professional qualification	Medical Doctor
academic and professional program	«Medicine»
mode of study	full-time
course(s) and semester(s) of study of the discipline	I course, I semester

Poltava – 2022 year

INFORMATION ABOUT LECTURERS WHO DELIVER THE ACADEMIC DISCIPLINE

Surname, name, patronymic of the lecturer (lecturers), scientific degree, academic title	Bychko Maryna Viktorivna - Candidate of Pedagogical sciences Marusych Oksana Oleksandrivna
Profile of the lecturer (lecturers)	https://www.pdmu.ua/fakultets/foreign-students/kafedry/med-inform/workers
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MAIN CHARACTERISTICS OF THE ACADEMIC DISCIPLINE

The scope of the academic discipline (module)
Number of credits / hours – **3,0 / 90**, of which:
Lectures (hours) – **10**
Practical classess (hours) - **20**
Self-directed work (hr.) – **60**
Type of control **Credit test**

The policy of the academic discipline

According to the Law of Ukraine "On Higher Education", the applicant of higher education is obliged to comply with the requirements of the legislation, the statute and the rules of procedure for persons studying at the academy. Follow the schedule of the educational process and the requirements of the curriculum. All participants in the educational process are obliged to attend lectures, practical and seminar classes and to show an active position in learning. In case of missed classes for two days in any form convenient for the recipient for higher educations to inform the dean's office about the reasons that make it impossible to attend classes and perform other tasks provided by the curriculum.

In the first lesson of the course, recipient for higher educationss are clearly informed about the structure of the discipline, types of classes, assessment criteria and forms of control measures.

During classes, recipient for higher educationss are encouraged to keep a synopsis of the lesson and take an active part in discussing the issues. Applicants must be ready to understand the material in detail, ask questions, express their views, discuss. During the discussion are important: respect for colleagues; tolerance for others; susceptibility and impartiality; the ability to disagree with the opinion, but to respect the personality of the opponent; careful argumentation of the opinion; adherence to the ethics of academic relations; independent performance of tasks in the discipline.

Adhere to the code of academic integrity when creating projects, preparing essays, reports and answers in class. In case of borrowing ideas, statements and educational information, it is correct to draw up the link, following the rules of citation.

When organizing the educational process in PDMU teachers and recipient for higher educationss act in the accordance with:

Regulations on the organization of the educational process in the Poltava State Medical University.

Regulations on the Academic Integrity.

Internal rules for recipient for higher educationss of the Poltava State Medical University.

Documents are situated on the site: https://www.pdmu.edu.ua/n-process/department-npr/normativni-dokumenti

Description of the discipline (annotation): The discipline "Life safety; bases of bioethics and biosafety" is taught in accordance with the full-time curriculum for the first semester of the 1st year. The course allows recipient for higher educationss to solve professional problems in the specialty, taking into account the risk of internal and external hazards that cause emergencies and their negative consequences, involves studying general safety issues, knowledge of laws, principles and rules governing the professional behavior of health professionals and researchers, use of new medical technologies and prevent harm to humans, their offspring, all mankind and the biosphere as a whole.

Prerequisites and postrequisites of the discipline (interdisciplinary links)

- is based on knowledge of basic natural science disciplines: medical biology, medical and biological physics, medical, biological and bioorganic chemistry, human anatomy with features of childhood, histology, cytology and embryology with features of childhood, Latin, history of medicine, foreign language with a professional orientation, philosophy and integrates with these disciplines.
- creates the basis for further study of clinical and hygienic disciplines. Lays the foundations for the formation of knowledge, skills and abilities that are determined by the ultimate goals of the program, necessary for the next professional activity.

The aim and tasks of the academic discipline:

- the purpose of studying the discipline is the formation of knowledge, skills and competencies to protect against the dangers of natural, man-made, social origin and create comfortable conditions for human life, the formation of knowledge about the moral side of human activity in medicine and biology.
- the main objectives of the discipline are the use in their future practice of legal, technical, environmental, preventive and educational measures aimed at ensuring healthy and safe living conditions in modern conditions, knowledge of laws, principles and rules governing the professional behavior of health professionals and researchers who promote the safe use of new medical technologies and prevent harm to humans, their offspring, humanity and the biosphere as a whole, the formation of respect for life and dignity of healthy and sick people, whose interests should always be valued above the interests of science or society.

Competences and learning outcomes in accordance with the academic and professional program, the formation of which is facilitated by the discipline (integral, general, special)

According to the requirements of the standard, the discipline «Life safety; bases of bioethics and biosafety» provides recipient for higher educationss with the acquisition of ***competencies:***

1) *integral:* - The ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.
2) *general:*
   - Ability to abstract thinking, analysis and synthesis, the ability to learn and master modern knowledge.
   - Ability to apply knowledge in practical situations.
   - Knowledge and understanding of the subject area and understanding of professional activity.
   - Ability to adapt and act in a new situation.
   - Ability to make informed decisions; work in a team; interpersonal skills.
   - Ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language. Ability to use international Greco-Latin terms, abbreviations and clichés in professional oral and written speech.
   - Skills in the use of information and communication technologies.
3) *special (professional, subject)):*

- Ability to diagnose emergency conditions.
- Ability to determine the tactics of providing emergency medical aid and carrying out medical evacuation measures.
- Skills in providing emergency medical care and performing medical manipulations.
- Ability to maintain medical documentation
- The ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population.
- Ability to analyze the activity of a doctor, unit, health care institution, conduct measures to ensure the quality of medical care and increase the efficiency of the use of medical resources.

Learning outcomes of the academic discipline:

upon completing the study in the academic discipline, recipient for higher educationss must

know:

- Basic principles of safety in ensuring human life;
- Methods, principles and theory of biomedical ethics;
- Bioethical bases of professional activity of the doctor;
- Models of relations of bioethical aspects of the basics of communication between the doctor and the patient and his family;
- Medical and ethical role and responsibility of doctors, middle and junior medical staff;
- Moral and ethical principles of truthfulness and informed consent;

- Principles of confidentiality (medical secrecy), their medical, ethical and legal aspects;

- Bioethical and legal problems of clinical trials of drugs and medical technologies;

be able to:

– To determine the basic principles of safe human life.
– Anticipate the consequences of violations of the valeological basis for the formation of a healthy lifestyle and their impact on the safety of human life.
– Analyze and evaluate situations dangerous to life, health and professional activity and make decisions on taking urgent measures.
– Apply moral, ethical and professional norms in professional life;
– Analyze pre-conflict and conflict situations and promote their resolution;
– Demonstrate an understanding of the legal regulation of the relationship "doctor - patient";
– Demonstrate mastery of the principles of medical deontology;
– Demonstrate mastery of moral and ethical principles of attitude to a living person, his body as an object of anatomical and clinical research.

Thematic plan of lectures (by modules), specifying the basic issues, which are considered at the lecture.

Seq. No.	Title of the topic	Number of hours
Module 1. "Safety of vital functions; bases of bioethics and biosafety" *Content Module 1. "Safety of human life in modern conditions".*		
1.	Categorical and conceptual apparatus of “Life Safety”. Ensuring the safety of human activities. *"Life safety", subject, tasks, main tasks. Axiom about potential danger. Principles and methods of ensuring the safety of human activities. Basics of life safety management. Human health as a medical, biological and social category. Spiritual, mental, physical and social aspects of human health. Health and pathology.*	2
2.	Dangers: natural, man-made, socio-political. The nature of their manifestations and effects on people and objects of the economy. *Atmospheric, lithospheric, hydrospheric, biological processes and phenomena; fire Industrial accidents. Dangerous events in transport. Radiation accidents and population protection. Global problems of humanity. Socio-political conflicts. Terrorism. Types of terrorism.*	2
Content module 2. "Fundamentals of bioethics and biosafety".		
3.	Bioethics: subject, object, purpose and tasks in the health care system. Bioethical foundations of a doctor's professional activity. *Bioethics, subject, object, tasks. Historical models of moral medicine. Relations between medical staff; the patient and his family. Models of doctor-patient relationships. Iatrogenies in medicine.*	2
4.	Human rights as a source of bioethical principles and criteria of behavior. Medical secret. Informed consent.	2

	The cost of human life and health. International documents on bioethics, human rights. Universal Declaration of Human Rights. Informed consent for medical interventions.	
5.	Bioethics of medical and biological experiments. Evidence-based medicine. *Experiment. Types of experiments. Physical experiment. Experiments on animals. Alternatives to animal testing. Scientific principles of evidence-based medicine.*	2

Thematic plan of seminar classes by modules and content modules, specifying the basic issues, which are considered at the seminar class – seminar classes are not provided by the program.

Thematic plan of practical classes by modules and content modules, specifying the basic issues, which are considered at the practical class

Seq. No.	Title of the topic	Number of hours
Module 1. "Safety of vital functions; bases of bioethics and biosafety" Content Module 1. "Safety of human life in modern conditions".		
1.	Categorical and conceptual apparatus of "Life safety", taxonomy of hazards. Risk as a quantitative assessment of hazards. *History of development and stages of formation of "Life safety". Hazard classification. The concept of risk. Risk management. Principles of determining the acceptable level of negative factors in relation to human health. System analysis of life safety.*	2
2.	Physiological, psychological and social foundations of the safety of modern human activities. *The external environment and environment of human activity. System "Man-external environment". Functional systems of the human body in ensuring its safety of vital activities. Protective functions of the human body. Dependence of the state of the body on external stimuli. Adaptation. Rational regimes of work and rest. Classification and characteristics of human living environment. Negative factors of the influence of the living environment on the human body.*	2
3.	Food safety as a component of safe human life. *The impact of nutrition on human life. Requirements for the quality and safety of food products. Food additives as possible pollutants. Genetically modified products and their danger to human health.*	2
4.	Ensuring the safety of human life. *Human health as a medical, biological and social category. Health indicators. Factors affecting human health. The concept of a way of*	2

	life, its features in modern conditions. The mechanism of harmful effects of alcohol, smoking and drugs on the human body.	
5.	Professional hazards in the performance of professional duties of medical workers. *Harmful and dangerous production factors. Acute, chronic occupational disease. Radiation safety during x-ray examinations. Radiation safety of radiological departments.*	2
Content module 2. "Fundamentals of bioethics and biosafety"		
6.	Bioethics: subject, purpose and tasks in the health care system. *Directions and methods of bioethics. History of professional medical ethics. Bioethics and the formation of the national health care system in Ukraine.*	2
7.	Bioethical foundations of a doctor's professional activity. *Relations between medical staff; the patient and his family. Models of doctor-patient relationships. Iatrogenies in medicine.*	2
8.	Bioethical and legal problems of human reproduction, genetic technologies, transplantology and blood transfusion. *Basics of bioethical assessment of the moral status of the fetus and the beginning of life, conflicts between the mother and the fetus. A woman's right to use contraception. Artificial insemination and embryo transplantation. Law of Ukraine on transplantation of human organs and other anatomical materials. Genetic engineering*.	2
9.	Bioethical and legal problems of HIV infection and other socially dangerous infections, medical psychology and psychiatry. *The main bioethical conflicts in the context of detecting HIV infection and providing medical care. Prevention. International and national regulation of HIV infection problems. Programs to combat HIV infection in Ukraine in the context of human rights protection. Psychosomatic concept of medicine. Bioethical problems of medical psychology. The main problems in psychiatry subject to biotic and legal assessment.*	2
10.	Bioethical problems of pain, suffering, rehabilitation and euthanasia. Credit test. *Euthanasia. Types of euthanasia. Bioethical problems of palliative and rehabilitation medicine. Venice declaration of terminal state. Bioethics of the final phase of life. The Sydney declaration regarding the ascertainment of the fact of death.*	2

Self-directed work

Seq. No.	Title of the topic	Number of hours
1.	Preparation for practical classes - theoretical training and development of practical skills	60

Individual tasks are not provided by the program

The list of theoretical questions for recipient for higher educationss' preparation for the final module control and semester final attestation - are not provided by the program.

The list of practical skills required for the final module control and semester final assessment - are not provided by the program.

The list of questions that a recipient for higher educations must master when studying the academic discipline (form of control – credit test)

1) The concept of the subject "Life safety", its main tasks.
2) Axiom about potential danger.
3) Hazard classification.
4) Natural hazards. The nature of their manifestations and effects on people and objects of the economy.
5) Man-made hazards and their influencing factors.
6) Socio-political dangers. Their types and features.
7) The role of functional systems of the human body in ensuring the safety of life.
8) Protective functions of the human body.
9) Rational modes of work and rest.
10) The concept of the external environment and the environment of human life.
11) Methods and means of human protection from negative factors of the external environment.
12) The concept of human health as a medical-biological and social category and its spiritual, mental, physical, and social aspects.
13) The impact of nutrition on human life.
14) Requirements for the quality and safety of food products and additives.
15) List of occupational hazards in the performance of professional duties of medical and pharmaceutical workers.
16) Bioethics. Subject. Tasks Main tasks. Functions of bioethics.
17) Models of doctor-patient relationships.
18) The patient's relationship with the staff of medical institutions and the family.
19) Iatrogenies in medicine. Types of iatrogens.
20) Contraception. Artificial termination of pregnancy.
21) Ethical problems of new reproductive technologies.
22) Human rights as a source of bioethical principles and criteria of behavior.
23) Medical secret.
24) Informed consent.
25) Biotic problems in the context of HIV infection detection.
26) Psychosomatic concept of medicine.

27) Bioethical problems of the final phase of life.
28) Bioethical and legal problems of physician-assisted euthanasia and suicide.
29) Physical experiment. Experiments on animals.
30) Evidence-based medicine.

The form of final control of academic performance

Credit test

The system of continuous and final control

At each practical lesson, current knowledge control is carried out in accordance with the specific goals of the topic. Theoretical training and independent work of the student of higher education are evaluated in practical classes, as the level of preparation for classroom classes.

Assessment of success is integrated (all types of recipient for higher educations work are evaluated both in preparation for the lesson and during the lesson) according to the criteria that are communicated to recipient for higher educationss at the beginning of the study of the discipline.

Criteria for assessing recipient for higher educationss' knowledge of the discipline are determined according to the standardized generalized criteria for assessing the knowledge of higher education recipient for higher educationss in PDMU (table 1).

Table 1

Standardized generalized criteria for assessing the knowledge of higher education recipient for higher educationss in PDMU

For 4-point scale	Score in ECTS	Evaluation criteria
5 (excellent)	A	The recipient for higher educations shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills of decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations, possesses not less than 90 % of knowledge on the topic both during the survey and all types of control.
4 (well)	B	The recipient for higher educations is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, the number of which is insignificant, has at least 85% knowledge of the topic as during the survey, and all types of control .
	C	The recipient for higher educations is able to compare, summarize, systematize information under the guidance of a researcher, generally apply it in practice, monitor their own activities, correct errors, among which are significant, select arguments to confirm opinions, has at least 75% knowledge of topics both during the survey and all types of control.

3 (satisfactory)	D	The recipient for higher educations reproduces a significant part of theoretical material, shows knowledge and understanding of the basic provisions with the help of a researcher can analyze educational material, correct errors, among which there are a significant number of significant, has at least 65% knowledge of the topic, and during the survey, and all types of control.
	E	The recipient for higher educations has educational material at a level higher than the initial, a significant part of it is reproduced at the reproductive level, has at least 60% knowledge of the topic as during the survey, and all types of control.
2 (unsatisfactory)	FX	The recipient for higher educations has the material at the level of individual fragments that make up a small part of the material, has less than 60% knowledge of the topic as at the time of the survey, and all types of control.
	F	The recipient for higher educations has the material at the level of elementary recognition and reproduction of individual facts, elements, has less than 60% knowledge of the topic as during the survey, and all types of control.

Conversion of the current grade, set on the traditional 4-point scale, to multi-point in each lesson is not carried out.

The form of final control of knowledge is a test. Applicants receive higher education, who scored the required minimum number of points during the current control (average grade point average of 3.0 and above), do not have missed vacancies for lectures and practical classess.

Learning outcomes are assessed on a two-point scale (credited / not credited) and a multi-point scale. The average score for current activity is converted into points on a 200-point scale, according to the table (Appendix 1). The maximum number of points that can be obtained by the applicant in the discipline – 200. The minimum number of points that must be obtained by the applicant of higher education – 122.

The final control of mastering the discipline is carried out upon its completion at the final lesson. The final score for current activities is defined as the arithmetic mean of traditional estimates obtained for current activities. The arithmetic mean score set on the traditional scale is converted into points according to the conversion scale.

The conversion is performed according to the following algorithm:

- calculates the arithmetic mean of traditional assessments obtained for current activities, obtained during the current classes related to this module (to the nearest hundredth point);

- the arithmetic mean of current performance is calculated on the total number of classes in the module, and not on the actual number of recipient for higher educationss;

- to obtain a convertible multi-point total assessment of current performance for the module arithmetic mean of traditional estimates obtained for current activities are converted according to the table. The exception is when the average on a traditional 4-point scale is less than 2 points. In this case, the recipient for higher educations receives 0 points on a multi-point scale.

Table 2.

Correspondence of the average score of the current performance on the traditional 4-point scale to the total assessment of the current performance per module

Average score of the current performance	Scores for the current performance after the conversion of the average score
2,00	80
2,10	84
2,15	86
2,20	88
2,25	90
2,30	92
2,35	94
2,40	96
2,45	98
2,50	100
2,55	102
2,60	104
2,65	106
2,70	108
2,75	110
2,80	112
2,85	114
2,90	116
2,95	118
3,00	122
3,05	123
3,10	124
3,15	126
3,20	128
3,25	130
3,30	132
3,35	134
3,40	136
3,45	138
3,50	140
3,55	142
3,60	144
3,65	146
3,70	148

3,75	150
3,80	152
3,85	154
3,90	156
3,95	158
4,00	160
4,05	162
4,10	164
4,15	166
4,20	168
4,25	170
4,30	172
4,35	174
4,40	176
4,45	178
4,50	180
4,55	182
4,60	184
4,65	186
4,70	188
4,75	190
4,80	192
4,85	194
4,90	196
4,95	198
5,00	200

If the applicant fulfills the conditions for obtaining credit, the teacher puts in the statement of the final semester control and the individual curriculum of the recipient for higher educations "credited" and the number of points scored by the applicant for the discipline. Information about recipient for higher educationss who did not receive a credit, with the exact reason is also entered in the "Statement of final semester control" and in the individual curriculum.

After the credit, the first copy of the "Statement of final semester control" is transferred to the responsible employee of the dean's office, within one day after the credit, the second copy is stored at the department.

Teaching methods

The studying of the discipline "Life safety; bases of bioethics and biosafety" is guilty of realizing on the basis of methods of productive education, spawn, problematic

wikklad, heuristic, pre-adolescent, interactive (method of projects, modeling of professional situations and roles). With a wide range of reproductive methods of guilt, the vicarists are found on the cob stage of development, the odds of the stench are given on the occasion of the creation of the knowledge that the typical establishment of the school of victorious algorithms. The peculiarities of the methods of productive education are among the mainstream of the minds of the activization of the mission, the promotion of the motivation of the recipient for higher educationss, the acceptance of creative solutions, the style of activity by extension.

Control methods

Oral control, written control, test control, self-control, practical check, final control is carried out in the form of credit test.

Methodological support

1. Working curriculum
2. Methodical instructions for independent work of recipient for higher educationss during preparation for a practical classes lesson and in class
3. List of recommended reading
4. Materials for control of knowledge, skills and abilities of recipient for higher educationss:
- tests of different levels of difficulty
- situational tasks
- computer control programs
5. Multimedia presentations

Recommended reading

Basic

1. Bases of Bioethics and Biosafety : Study guide for students of institutions of higher education of Ministry of Health of Ukraine / V. M. Bobyrov, O. M. Vazhnicha, T. O. Devyatkina = Основи біоетики та біобезпеки : навчальний посібник для студентів закладів вищої освіти МОЗ України / В. М. Бобирьов, О. М. Важнича, Т. О. Дев'яткіна. - 2nd stereotyp. ed=Вид. 2-ге, стереотип. - Vinnytsia=Вінниця : Nova Knyha=Нова Книга, 2019. - 246 p. : il ; 21 sm. - На англ. мові.
2. Occupational Health and Safety for Healthcare Workers : [study guide for students of higher medical education establishments of the 4th level of accreditation] / O.P. Yavorovsky, M.I. Veremey, V.I. Zenkina et al. - K. : Medicine Publishing, 2015. - 118 p. : il. - На англ. мові.
3. Safety of vital functions : for the students of higher medical educational establishments of the IV level of accreditation / Y.O. Ischeykyna, O.O. Lienkova, N.V. Tron ; UMSA, Department of medical informatics. medical and biological physics = Безпека життєдіяльності людини : для студентів вищих мед. навч. закладів IV рівнів акредитації / Ю.О. Іщейкіна, О.О. Лєнкова, Н.В. Тронь ; УМСА, Кафедра мед. інформатики, мед. та біол. фізики. - Poltava : Копір сервіс, 2014. - 102 p. - На англ. мові.
4. Медична етика і деонтологія у клінічній практиці : навчальний посібник [для студентів, лікарів-інтернів, курсантів, практикуючих лікарів] / Н.І. Чекаліна, Є.Є.

Петров ; МОЗ України, ЦМК, УМСА = Medical ethics and deontology in clinical practice : The textbook for students / N. Chekalina. Ye. Petrov ; Ministry of Health of Ukraine, Central methodological office, UMSA. - Poltava : Укрпромторгсервіс, 2015. - 145 p. - На англ. мові.

Additional

1. Bioethics. An Anthology/Ed. By H. Kuhze, P Singer. – Oxford: BlackwellPubl. Ltd, 1999. – 600 p.
1. Kovalyova O. MedicalEthics / O. Kovalyova 2001. – Kharkiv, 128 p.
2. Mappes T.A. Biomedical ethics /T.A. Mappes., D. De Gracia. – Me Graw Hill. 2001/ - 707 P.
3. Thomas A. Mappes Biomedical Ethics / Thomas A. Mappes, David DeGrazia. //McGrawHill. – 2001. – 707p.
4. Veath R.M. The Basics of Bioethics / R.M.VeathNew Jersey: Prentice Hall, 2003/ - 205 p.
5. Vogel F., Motulsky A.G. Human Genetics: problems and approaches / F. Vogel, A. G. Motulsky. – 1997. – 851 p.
6. USMLE. Step 2 CK. 2018. Psychiatry, Epidemiology, Ethics, Patient Safety : lecture notes / ed.: A. Gonzalez-Mayo [Psychiatry], T. A. James [Patient Safety and Quality Improvement]. - New York : Kaplan Medical, 2017. - vi, 237 p. : il. ; 28 sm. - На англ. мові. - Index: p. 225-237.
7. USMLE. Step 3. 2017-2018. Internal Medicine. Psychiatry. Ethics : lecture notes / ed.: C. Faselis, M. A. Castro, J. J. Lieber, A. Gonzalez-Mayo [Psychiatry and Ethics] et al. - New York : Kaplan Medical, 2017. - vi, 488 p. : il. ; 28 sm. - На англ. мові.

Information resources

1. Official Internet Representation of the President of Ukraine http://www.president.gov.ua/.
2. The Verkhovna Rada of Ukraine http://www.rada.gov.ua/.
3. Cabinet of Ministers of Ukraine http://www.kmu.gov.ua/.
4. Ministry of Education and Science of Ukraine http://www.mon.gov.ua/.
5. Ministry of Ecology and Natural Resources of Ukraine http://www.menr.gov.ua/.
6. State Service of Ukraine for Emergencies http://www.dsns.gov.ua/.
7. National Security and Defense Council of Ukraine http://www.rnbo.gov.ua/.
8. Permanent Mission of Ukraine to the United Nations http://ukraineun.org/.
9. North Atlantic Treaty Organization (NATO) http://www.nato.int/.
10. World Health Organization http://www.who.int/en/
11. http://www.bioethics.net
12. http://www.bioethics.as.niyu.edu
13. http://www.bioethics.ca

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