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BIOTECHNOLOGY AND POSTGRADUATE COURSE OF BIOETHICS IN THE REPUBLIC OF TURKEY: SOME ASPECTS*

Ethics course is one of the courses, which has been given in Spring terms at the Ankara University Biotechnology Institute since 2005, is reviewed in this article. Ethics course has been taken by 245 students between 2005–2013 years in the Institute. This study is mainly aimed two purposes. First of all, demographic information of the registered students is demonstrated using the tables. In addition, opinions of the students about the course are reviewed using feedback forms that filled out by the student. The results encouraged us to make conclusions that Ethics course is an indispensable course and meet the expectations of the students, although attendance to the course decreased recent years. For the future, to evaluate the contribution of ethics course on careers of graduate students of biotechnology area using a survey prepared by the persons, who are working on this study, is aimed.

Key words: ethics education, biotechnology, Turkey.

INTRODUCTION

The rapid developments in biotechnology area make their effects perceivable in daily life. On the other hand this area needs at least having awareness from ethical point of view. Therefore, the role of ethics education that will be

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given to those who are working and studying in the area of biotechnology is also gradually increasing.

Based on the developing applications of modern biotechnology like less use of chemicals in agriculture, increasing crop yield, improving energy resources, producing drugs and hormones etc. biotechnology has been crucial and placed in the point of no return in human life. It is clearly seen that biotechnological applications are effective in a wide range; health, industry, environment, genetically modified foods, animal products, agriculture etc. Unquestionably, biotechnology is an area having a power to facilitate and direct the life of all living beings and the environment in many cases. On the other hand, several applications of the modern biotechnology also bring social, ethical and legal issues besides invaluable benefits of it. To determine and solve the problems added by the developing of modern biotechnology has been one of the essential issues recent years. As highlighted by Arda, [1, p. 213] *'The issues of biotechnology that may cause controversy are as follows:*

- *Ethical problems caused by cloning humans, medical problems, the problem of gene ownership;*
- *Problems related to gene patents, security and ethics problems related to modified organisms;*
- *The employment of stem cells, whose sole source is still human embryo, for tissue engineering;*
- *Problems regarding the confidentiality of genetic profiles, for example consideration of national police records on gene profiles, problems caused by the consideration of genetic tendencies in job applications and insurance;*
- *Environmental destruction that may be created by genetically modified organisms;*
- *Problems of eugenics, selection of sex;*
- *The risk of the design of biological weapons'.*

It is obvious that we are in need of the ethical and legal solutions and regulations to protect the rights, health and dignity of all creatures and nature. For this purpose, people who are working and studying in the area of biotechnology should be trained by ethical values.

The importance and necessity of ethics education is not only in biotechnology area but also in different areas and this reality is proven with several studies. Mayhew and Murphy [2, p. 409] were discussed the impact of ethics education on ethical behaviors in accounting students. The effect of the being anonymity or public disclosure of participants on internalizing ethical values and behaviors is also considered in the study. Fourth year Masters of Accounting students (took ethics education program) and fifth year Masters of Accounting students (did not take ethics education program) took part in an experiment providing opportunity and motivation for more money using misreport. It is reported whether participants took ethics education program, they, who are anonymous, showed similar rates. For the publicly disclosed behaviors, misreporting rates in the students, who took ethics education program, is significantly lower than students, who did not take the program. They have developed a perspective that ethics education can affect the ethical behavior. However, internalizing ethical values may not to depend on the ethics education.

Medicine is the other area that the place of ethics education is discussed. Ozturk [3, p. 252] states the ethics education in medicine in Turkey by different aspects. The necessity of improving and making standardization medical ethics education was figured out.

On the other hand, Novossiovolva and Sture [4, p. 80] argue that the importance and sufficiency of ethics education for life scientists. Besides, the reason of the problems in turning ethical knowledge to ethical practice was discussed. As highlighted by Novossiovolva and Sture, because of exogenous factors such as bureaucracy and institutional culture, ethics education has a limited affect to the individuals' behaviors.

In Turkey, there are several universities and centers that give the education of biotechnology or ethics. However, a combine education for ethics and biotechnology area is a rare situation in Turkey.

From the ethics education point of view, it is possible to say that biotechnology education in Turkey has increased thanks to the recent developments in this area. This education is divided into undergraduate, graduate (MSc. and PhD.) educations and certification programs. In the context of undergraduate education, there are several biotechnology departments in Turkey.

As an example for undergraduate education, Konya Necmettin Erbakan University, which is established in 2010, known as Konya University, has a biotechnology department. Beside this, four-year biotech undergraduate education is given in the Agricultural Faculties of Adnan Menderes University (Aydin) and Kahramanmaraş Sütcü Imam University. The Biology Department of Ankara University offers molecular biology and biotechnology department as selective course final year. Since 2011 term, a dual licence has been carrying on between Ankara University and Montana University.

In addition, biotechnology education is generally major on the graduate programs. The biotechnology education is given in the context of graduate education at several universities; Konya Necmettin Erbakan University, Bezmialem Private University Faculty of Pharmacy (Istanbul), Erciyes Univeristy Medicine University (Kayseri), Middle East Technical University (Ankara), Hacettepe University (Ankara), Anadolu University (Eskisehir), Ege University (Izmir), Sabanci University (Istanbul) and Yeditepe Univeristy (Istanbul).

Last, there are several certifications programs in biotechnology area in Turkey. In the context of several field of studies is given by TUBITAK (Scientific and Technical Council of Turkey) Marmara Research Center (MRC) affiliated Genetic Engineering and Biotechnology Institute. Beside this, there are various certification programs is given in the Uskudar University Biotechnological Research and Application Centre (Istanbul) and Cukurova University Biotechnology Research and Application Centre (Adana).

The Institute of Biotechnology at Ankara University is the first interdisciplinary graduate school of biotechnology established in Turkey, is a research establishment focusing on health and agricultural bio-tech. Included in the future perspective of the Institute are goals like the development of biosimilar drugs and the identification of novel biomarkers for complex diseases and molecular farming. The Institute was founded primarily to create a niche and a critical mass for biotechnology research in the country. On this basis, the critical mass assembled

around the General Council of the Institute and the Academic Board of the Central Lab has generated significant translational data in the Life Sciences for 12 years now since its foundation and for 8 years since the inauguration of the Central Laboratory [5].

When we look at the contents of the mentioned programs above, except the Ankara University Biotechnology Institute, it is possible to say that there is no ethics lecture. In this context, Ethics course given in Ankara University Biotechnology Institute is a unique course and reviewed in this study. Essentially two aspects are maintained in this study. First of all, some demographic information about the registered students; like number of students for each term, age, gender, academic standing, program type, program of undergraduate degree, pass grade, are compiled and presented by the tables. In addition, it is planned to make a detailed analysis about the course with the use of data obtained from the feedback forms prepared by the professors in charge. In the light of these data, the experience of ethics education in the field of biotechnology is evaluated and the possible aspects need to reevaluate is emphasized. For the future, to evaluate the contribution of ethics course on careers of graduate students of biotechnology area is aimed.

1. GENERAL INFORMATION ABOUT THE ETHICS COURSE

Ethics course has been given in Spring terms at the Ankara University since 2003–2004 academic year. The course has been given in two Institutes at Ankara University, respectively Graduate School of Health Sciences (2003 and 2004 Spring terms) and Biotechnology Institute (2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 and 2014 Spring terms). In this paper, we focused on the terms of the course at Biotechnology Institute.

Ankara University Biotechnology Institute Ethics course has 112501 code and 303 credits. The Institute has three graduate programs under Biotechnology department: Basic Biotechnology (MSc and PhD), Socioeconomic Development and Biotechnology (MSc and PhD) and Bioinformatics (MSc). Ethics course was the required courses for the students of all the programs until 2010. By this year, the course was turned to a selective course for Basic Biotechnology, Bioinformatics programs. Ethics course is still a required course for Socioeconomic Development and Biotechnology program.

The responsible teachers of the course are Prof. Dr. Berna Arda from Department of Medical History and Ethics (Ankara University Faculty of Medicine) and Prof. Dr. Hayriye Erbaş from Department of Sociology (Ankara University Faculty of Languages, History and Geography).

The total number of teaching hours is 3 hours per week, so the total number of teaching hours is 42 hours for each term. The course is taught for both doctorate and master degree programs. The language of the course is Turkish, and the course is open to all international students. Since Biotechnology Institute is an inter-discipliner institute; graduate programs accept students with backgrounds in several programs such as biology, medicine, food engineering, sociology, agricultural engineering, department of business etc. Detailed information about the course is given with the subtitles below.

1.1. Educational Objectives: The educational objectives of ethics course are determined as, awareness of normative dimensions, moral sensitivity, good conduct, identification of moral issues, knowledge/information, understanding/explaining, analysis /reasoning, justification/argumentation and critical reflection.

1.2. Teaching Methodology: the teaching methodology of the course based on the lectures and seminars. Lectures are given for 32 hours and seminars are presented by students for 10 hours.

1.3. Syllabus: The lectures and seminars mainly focused on the possible results of biotechnological developments in all areas. In the sense of science and power relation that forms human life both at national and global level.

'How science and technology can be used for good of human beings without deepening inequalities?' and 'What are already doing and what can be do for a better use of new technologies i.e. biotechnology?' are main questions that discussions focused on.

- The topics are covered by this course, in both lectures and seminars:
- Discussion and definition of the concepts and principals of ethics
- Introduction to the problems in the history of ethics
- Breakthroughs in the history of ethics
- Discussion of relation of ethics to the logic of reasoning
- Discussion of the changes in ethics and logic of reasoning in relation to social structure
- Discussion of breakthrough in the ethics and the logic of reasoning in the history of science:
- Discussion of change of aims of the science and technology by focusing of science and ethics in medieval times, modern times and post-modern times.
- Social Darwinism and other example of misuse of science in the history.
- The meaning and function of rising ethical commission last decades
- The meaning of gene-ethics, animals, environment and respondent in the sense of bioethics
- Ethical principal in clinical and social research.

1.4. Study Materials: The study materials of the course are not only mandatory but also recommended materials. Mandatory materials are composed of books, articles and issues.

On the other side, recommended materials are selected books and articles by the students discuss ethical aspects of their areas of interest that related to biotechnological developments. The teaching program of the course also recommends some documents of UNESCO. Moreover, selected articles discuss ethical aspects of biotechnology. For the issues, any material to related to biotechnological development especially in Turkey, i.e., any materials related to the Biosafety Regulation Law. Study materials are listed below:

Books:

Annemarie, Pieper (1999) *Introducing to Ethics* (in Turkish); Bauman, Zygmunt (1998) *Postmodern Ethics* (in Turkish); Mayor, Federico and Augusto Mayor (1995) *Science and Power* (in Turkish); Rifkin, Jeremy (1998) *Century of Biotechnology* (in Turkish); Habermas, Jurgen (2003) *The Future of Human Nature*, Cambridge Press; Fukuyama, Francis (2003) *Our Posthuman Future:*

Consequences of The Biotechnology Revolution (in Turkish); Bioethics Thesaurus. Kennedy Institute of Ethics, Georgetown Uni. Press, Washington DC, 1999; Principles of Biomedical Ethics, 3rd ed. Tom Beauchamp, James F. Childress; New York, 1989; Arda B, Kahya E, Başağaç Gül T: Science Ethics and History of Science, Ankara, 2009 (in Turkish); Tranoy KE: Is there a universal research ethics? Berg K, Tranoy KE (Eds.) Research Ethics. New York, 1983.

UNESCO documents:

Cartagena Biodiversity Protocol, The Universal Declaration on Bioethics and Human Rights, The Universal Declaration on the Human Genome and Human Rights.

1.5. Evaluation of the Students: To evaluate the performance of the students, two ways that are writing essays and participation in seminars is preferred by the course teachers. The attendance to the lesson is the other important criteria for the evaluation of the students.

Evaluation of the Course: The teachers of the course attach importance to the evaluation of the course, so they have kept this evaluation process for years. For this purpose, the evaluation papers are prepared and given to the students to fill them out in end of each semester. Making this evaluation by teachers and filling put the forms by students are not mandatory process [6].

2. DEMOGRAPHIC INFORMATION

During 2005–2013 years, 245 students took the Ethics course in Biotechnology Institute. Therefore, only the demographic information of the students, who took the course in Biotechnology Institute, is recovered in this study. Demographic data based on students’ information in the each term and represented by the tables.

2.1. Student Number

The number of students who took the course in each term is showed on Table 1. For the following tables, an academic year, which is stated with two years, is only indicated with the year of course term. For example, 2004–2005 academic year is showed as 2005 and this mentions Spring term of the 2005, namely term of the course.

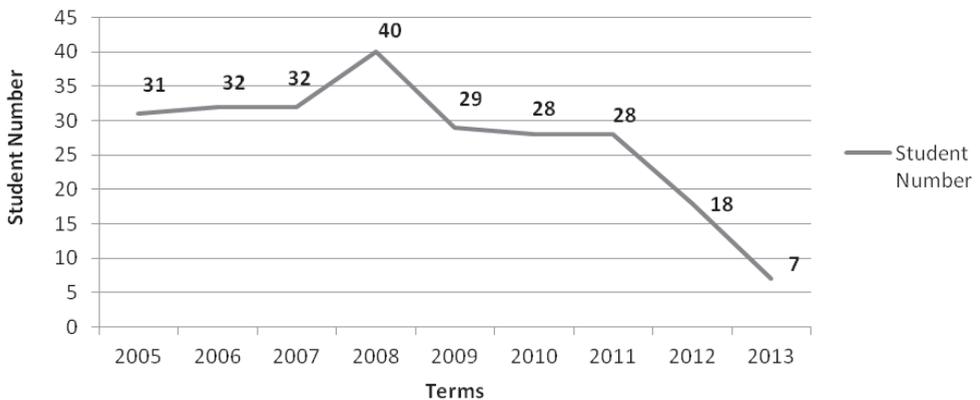


Table 1. Number of Students Based on the Terms

Between 2005 and 2013 years, 245 students registered the course. The student number for each term is respectively 31, 32, 32, 40, 29, 28, 28, 18 and 7. The trend increased between 2004 and 2008 years, and after this point, it goes down until recently.

2.2. Age

Examining the age of the students is other criteria checked under demographic data title. Age of the students is placed between 20 and 44 years old. This 25 years period is divided to 5 ranges and each range includes 5 years. The collecting data is represented based on the terms on Table 2.

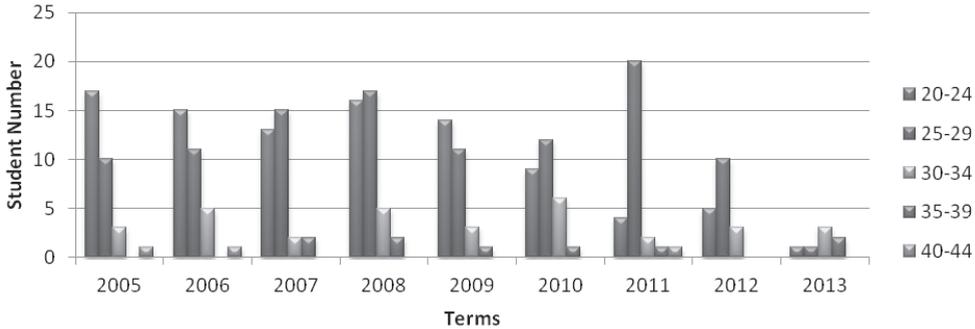


Table 2. Age Ranges for Students Based on the Terms

Although there is intensity 20–24 and 25–29 age ranges are intense, the age variability occurs in all terms. However, in 2013 these two ranges are equal and lower than 30–34 and 35–39 ranges. As is seen from the table, students’ ages are cumulated especially between 20 and 29 years old. The other age ranges (30–34, 35–39, 36–40) are usually are lower than these two ranges and close to each others. On the other hand, students’ age, who are in 25–29 years old ranges, is remarkable higher than others in 2010, 2011 and 2012 terms.

2.3. Gender

Gender distribution of the students is mentioned on the table below.

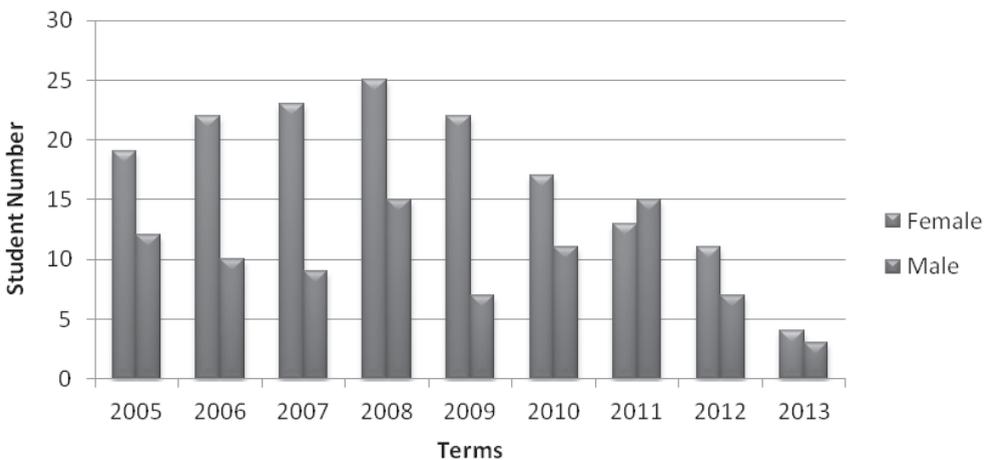


Table 3. Gender Distribution of the Students Based on the terms

Except 2011, the number of female students is higher than male students in each term.

2.4. Type of the Program

As mentioned before, Ethics course is for both PhD and master students. The type of the program, which students attend to, is also evaluated in this study and showed on Table 4.

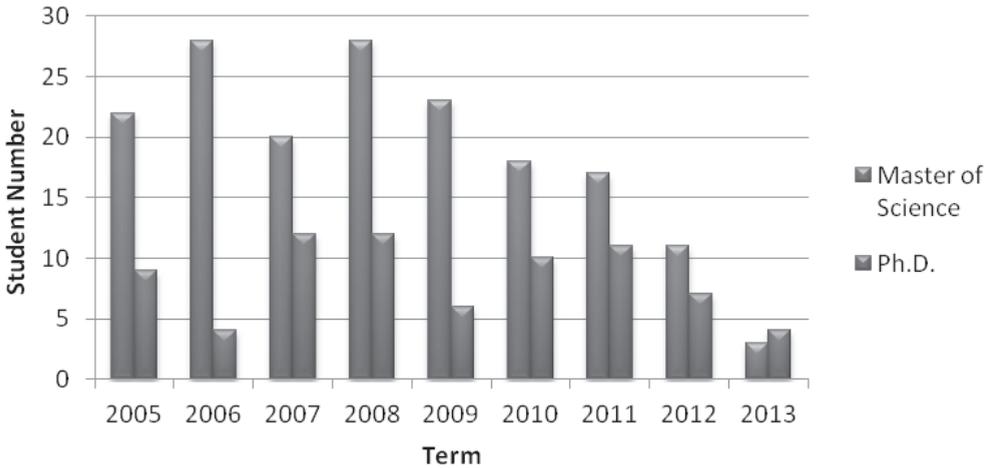


Table 4. Number of Students Based on the Program Type for Each Term

The attendance of MSc students to the course is generally higher than PhD students during nine years. The difference between numbers of students due to the program types decreased during 2010, 2011 and 2012 years. The number of PhD students is higher than MSc students only in 2013.

2.5. Evaluation of the Students

The last data given in demographic information is evaluation of the students. For this data, number of the passed and failed students is indicated in each terms and showed on Table 5.

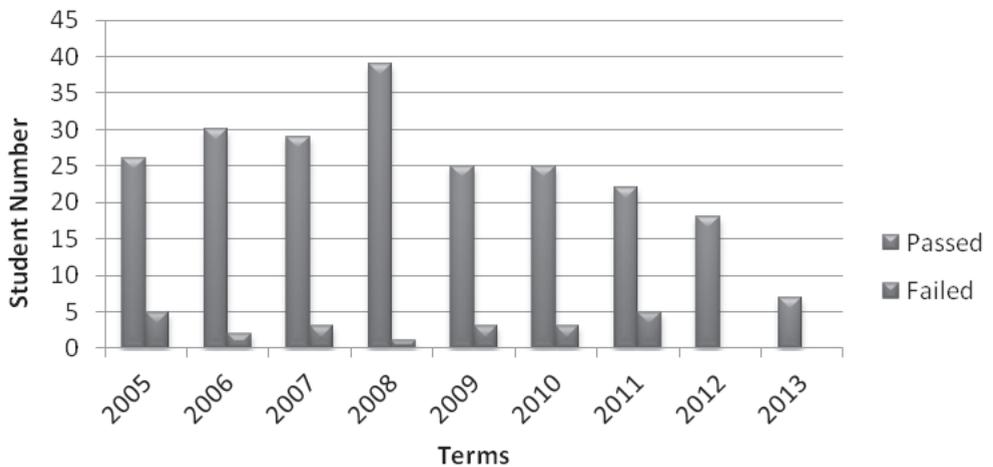


Table 5. Evaluation of the Students

In general, the number of the students passing the course is remarkable higher than the number of the students failed. Moreover, there is no failed student in 2012 and 2013 years.

3. EVALUATION OF THE COURSE BY STUDENTS' OPINIONS

The feedback-forms have been given to students in the end of each semester are evaluated. The filling out the forms is optional, so the number is form is naturally lower than students' number. The purpose of this implementation is to evaluate the course in the view of students and so, to improve the necessary points for the future.

In this part of the study, the data is not evaluated based on the term, instead evaluated due to the topics. There are some variations between the forms in each term, but the evaluated items from the each form are basically same.

In each feedback form, it is aimed to evaluate the students' opinions via many items. We are collected the items mainly under four subtitles: Content and method of the course, atmosphere of the classroom, opinions for the teachers and general attitudes for the whole course. The topics and the items are located in topics are represented on Table 6 below.

Furthermore, the evaluation based on a scale of three steps, it is used as 'I agree', 'I do not agree' and 'No idea' in these feedback forms.

- I agree means student has a positive attitude for the related subtitle.
- I do not agree means student has a negative attitude for the related subtitle.
- No idea means student does not have a clear opinion or not decided yet for the related subtitle.

After all these arrangements, data is collected from each feedback-form and classified under four topics and represented on the tables (Table 7, 8, 9 and 10). In addition, overall evaluation of the Ethics course by students' feedback forms are demonstrated without topic classification and stated on Table 11.

Table 6. The list of the items in the feedback forms

| 1. Content and Method of the Course | |
|--|--|
| Items | |
| 1 | The course is easy to learn |
| 2 | The time that allocated to this course is sufficient |
| 3 | The course is conducted with the participation of the students |
| 4 | In this course, different ethical situations are described adequately |
| 5 | The contents and the level of the course is well-planned |
| 6 | The course contains clear and understandable subjects |
| 7 | The course is informative and instructive |
| 8 | There is good balance between the total period and the weekly period of the course |
| 9 | The success measuring methods are appropriate with the aims and contents of the course |
| 2. Atmosphere of the Classroom | |
| Items | |

| | |
|--|---|
| 1 | There is a positive interaction between the teacher and students |
| 2 | Atmosphere in the classroom is comfortable and friendly |
| 3. Opinions for the Teachers | |
| Items | |
| 1 | At the beginning of the course, the teachers explained the objectives of the course clearly |
| 2 | The teacher made it clear what he/she expectations from the students |
| 3 | The teacher gave the subjects in a logical order |
| 4 | The teacher has a good ability of explaining |
| 5 | The teacher uses visual tools when he/she gives the course |
| 6 | The teacher is generally effective and successful |
| 7 | The teacher gives the course eagerly |
| 8 | The teacher leave on impression that he/she enjoy giving the course |
| 9 | The teacher prepared well to the course |
| 10 | The teacher presents the subject in the course and in the discussion about the course efficiently |
| 11 | The teacher carried out the timetable when he/she gives the course |
| 12 | The teacher summarized the subject that he/she tell about at the end of the course |
| 13 | The teacher's voice, spelling and using Turkish is good |
| 14 | The teacher's attitude toward the students is friendly |
| 15 | There is a positive interaction between the teachers and the students |
| 16 | The teachers are successful at teaching generally |
| 4. General Attitudes for the Whole Course | |
| Items | |
| 1 | I have increased my knowledge and sufficiency in this field through the course |
| 2 | In this course, I have gained knowledge, skills and approaches that I can use in my career. |
| 3 | The course promotes to improve my intellectual skills in this area |
| 4 | The course increases my interest to the subject |
| 5 | I enjoy learning the subject |
| 6 | I have learned the subject |
| 7 | The course increases my awareness of normative/value dimension |
| 8 | The course increases my ethical sensitivity |
| 9 | The course provides information about right attitude/position |
| 10 | The course provides information about specific issues |
| 11 | The course increases my understanding/explaining skills |
| 12 | The course provides making analysis and reasoning |
| 13 | The course increases verification/argument skills |
| 14 | The course directed me to the questioning all the time |
| 15 | The course contributed to critical thinking |

| | |
|----|---|
| 16 | I realized that the ethics is a part of life through the course |
| 17 | I learned that I have to consider the other people’s opinion through the course |
| 18 | The course directed me to think about the issues never thought before |
| 19 | I am informed about the existence of the different perspectives of the issues I have thought before |
| 20 | What I learned in this course is useful for me that I can use in my professional life |
| 21 | The course contributed to learn the discussion techniques |
| 22 | The course gains a lot of things to my thinking style |
| 23 | I have learned about how the science and technology reflecting to the society |
| 24 | The course directs me to reunderstand and reinterpretation |
| 25 | Before and after taking this course, there have been changes in the way of my questioning the incidents |
| 26 | I think this course is necessary for all fields |
| 27 | The course provides me to interest on the subject |
| 28 | The course increases my interest in this subject |
| 29 | The course is necessary for my scientific and professional development |
| 30 | The course provides me professionalism and ethical responsibility in the this field |
| 31 | This course contributes to improve my communication skills |
| 32 | I would like to take similar courses |
| 33 | I recommend this course to others |

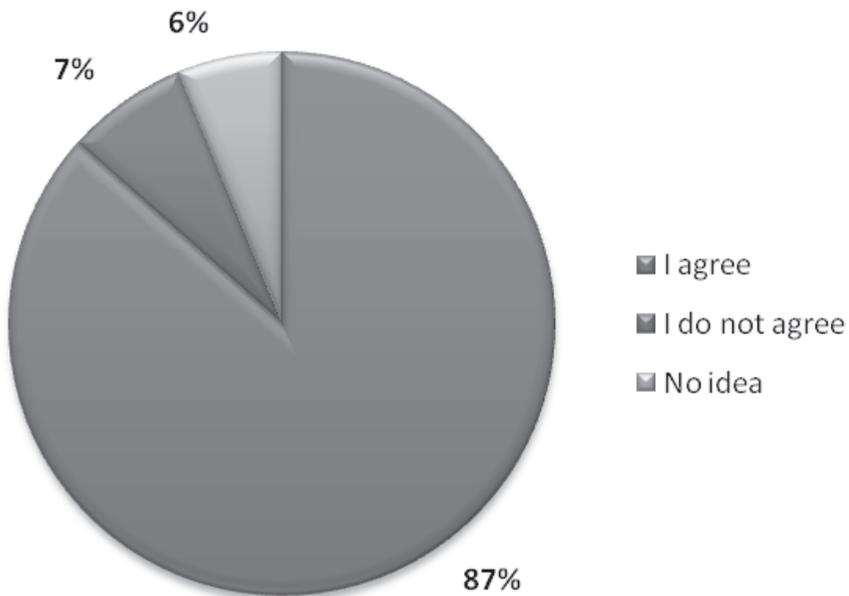


Table 7. Content and Method of the Course

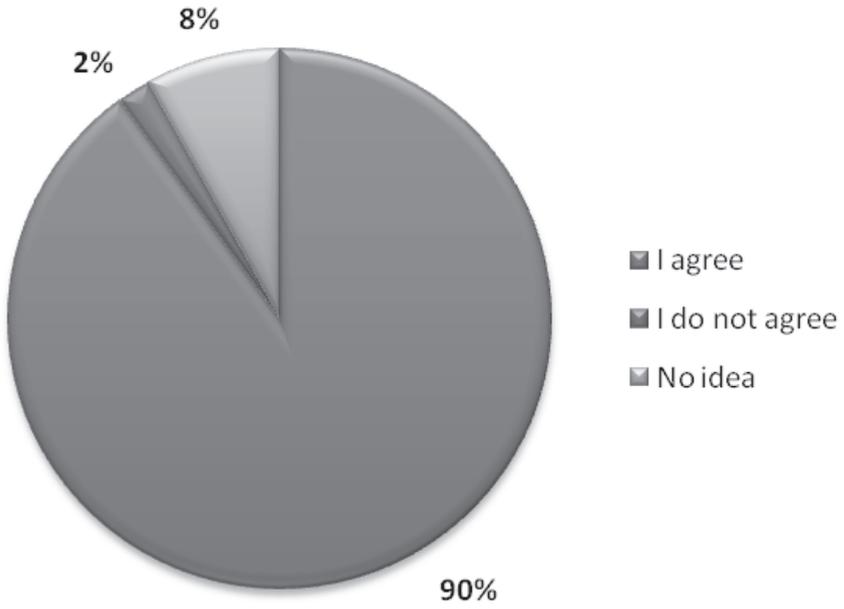


Table 8. Atmosphere of the classroom

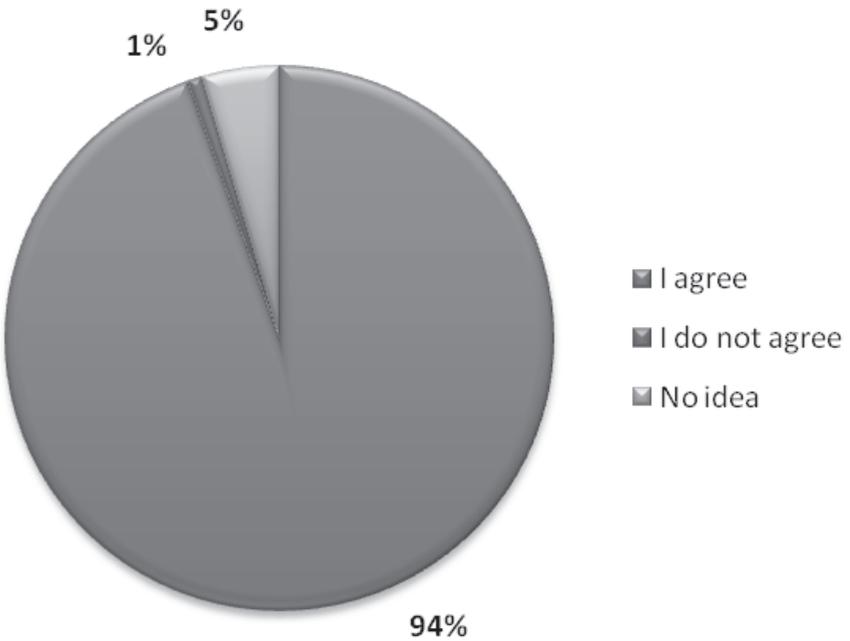


Table 9. Opinions for the teachers

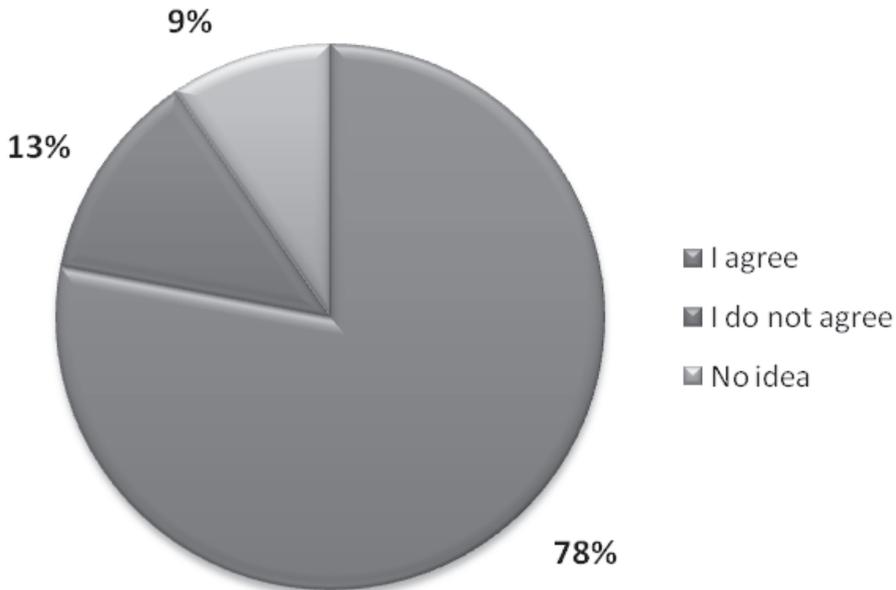


Table 10. General attitudes for the whole course

In the first view, it seems that all opinions as to the course have positive trend. When we look at the trend of each topic, answer as 'I agree' is remarkable higher than 'I do not agree' and 'No idea' answers for each topic. On the other hand, the rates of the 'I do not agree' and 'No idea' are close in all topics, although their situation to each other changeable.

For the content and method of the course, 87 percent of the students have positive attitude while 7 percent of them have negative attitude and 6 percent of them have no idea (Table 7). Students' opinions about the classroom atmosphere are represented on Table 8. According to the data, 90 percent of the students checked the 'I agree scale', and remaining of them shares the 10% of scales as 2% 'I do not agree' and 8% 'No idea'. The following subtitle is opinions for the teachers include students' thoughts about the teachers of the course. Overwhelming majority (94%) has positive attitudes about the teacher. Besides, 1% of them has negative attitude whereas 5% of them has no idea (Table 9). Lastly, Table 10 demonstrates the students' general attitudes for the whole course. Many of the students (78%) have positive attitudes. On the other hand, 13% of them have negative attitudes while 9% of them no idea for the whole course.

Collecting all these data, an outcome is indicated on Table 11. When we view the overall evaluation of the Ethics course due to feedback forms, 83% percent of the students' express positive feedback for the course. Moreover, rest of them represents negative attitude or no idea.

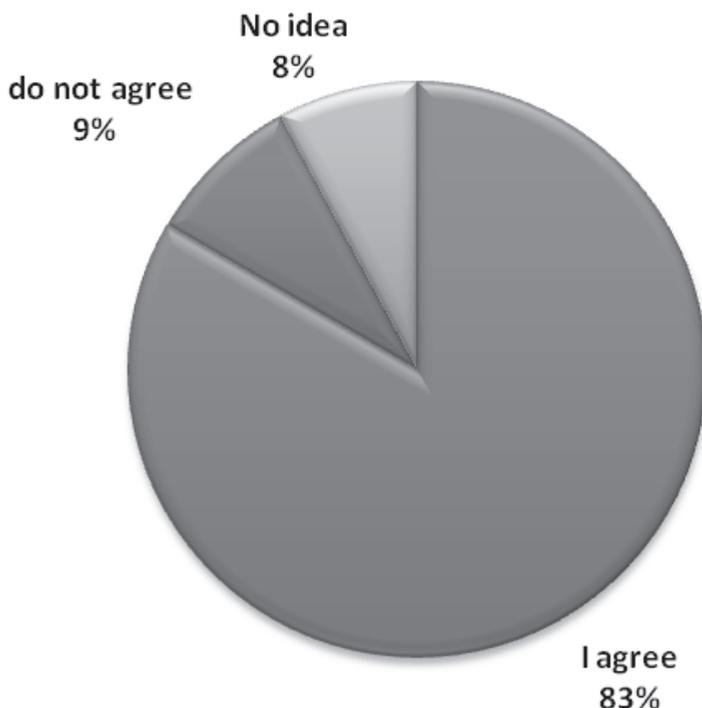


Table 11. Overall evaluation of the Ethics course by feedback forms

CONCLUSIONS

Ethics course, which is given in Biotechnology Institute, is a unique course in Turkey. The course is preferred by the students, who are from different backgrounds by graduated programs such as biology, economics and medicine. This study mentioned almost all data belongs to the course by collecting the demographic data of the students and examining the students' feedback forms. In the view of such information, following points are concluded from the study.

The number of students down decreased sharply in last two years, 2012 and 2013. This downtrend can explain with the changing was made in the situation of the course as from required to selective for two of three programs of the Institute in 2010. As a result, this situation can conducted to this down trend. When we looked at the age ranges of the students, there is variability for all terms. Since Ethics course is given an interdisciplinary institute and open to both MSc and PhD students, this variability can receive normal. Besides, the ages of the students are cumulated on the 20–24 and 25–29 years old. This is an expected result because undergraduate students usually graduate at 21–22 years old from university in Turkey and also, graduate education starts shortly after graduation.

Gender distribution of the students due to the terms is also stated in the study. The number of female students is higher than male students in all years, except 2011.

Under the program type title, number of students receiving education either master or PhD program is examined. Along first seven years, number of master students is higher than PhD students. There some possible explanation can be asserted for this case. First of all, since Ethics course is required or highly

recommended in 3 departments of the Institute and Institute does not accept the students for PhD program without master degree, almost all master students take the course before PhD education. Also, if a student takes the course at master education, he/she cannot take the course one more time in PhD.

Students' performance is evaluated by writing essay and participation in seminars. Based on this table, it can be said that students succeed in this course. In addition to this, students have to attend 70 percent of the course hours during the term otherwise, they are regarded as failed. The number of failed students' is too low compared to the number of passing students. When we viewed the reason of failings, they usually are based on the not entering to the exam or absences. As a result, failing of the students is rare in concern with the failure in exams or seminars; instead it usually depends on the students' personal choice.

For the evaluation of the course, feedback forms guide us. Based on the collecting data from these forms, students certainly have positive attitudes for the course in all topics. This result indicates that Ethics course is a substantial course for the students and they are pleased taking it.

Although there are some limitations such as the number of evaluated feedback forms is lower than number of students because of willingness and this is not a prospective study, all the results encouraged us to make conclusions that Ethics course is a unique and indispensable course and meet the expectations of the students. Broadly, the educational objectives are reached for the course.

FUTURE ASPECTS

In the light of these data, it is aimed to define the experience of ethics education in the field of Biotechnology at Ankara University and to determine the possible aspects that need to be further developed. Depends on the all these collecting data and conclusion, future aspects are determined.

To evaluate the contribution of ethics course on careers of graduate students of biotechnology area, making a survey to students, who took the course in Ankara University Biotechnology Institute throughout during 9 years, is planned. Moreover, to point out the place, importance and necessity of ethics education in biotechnology area for graduate students in Turkey is also aimed in the frame of this study for the future.

1. *Arda B.* Ethical respects of biotechnology and the case of Turkey. *J Int Biotechnol Law.* 2004; 1(5):210-214.

2. *Mayhew BW, Murphy PR.* The impact of ethics education on reporting behavior. *Journal of Business Ethics.* 2009; 86:397-416.

3. *Ozturk Turkmen H.* Medical Ethics Education and the Turkish Experience: Medical Education. *Turkiye Klinikleri J Med Sci.* 2009; 29(1):246-253.

4. *Novossiovolva T, Sture J.* Towards the responsible conduct of scientific research: is ethics education enough? *Med Confl Surviv.* 2012; 28(1):73-84.

5. Ankara University Biotechnology Institute [homepage on the Internet]. c2014 [cited 2014 May 20] Available from: <http://biotek.ankara.edu.tr/>

6. *Arda B, Erbas H.* Ethics education in graduate, master and doctorate levels. presented paper on biotechnology and ethics course UNESCO regional experts meeting. 2007 March 5-6, Istanbul, Turkey. (personal interview).

Каплан У., Куртуглу А., Арда Б., Ербас Х.

Галузь біотехнологій і післядипломний курс біоетики в Турецькій Республіці: деякі аспекти

Висвітлено особливості викладання курсу «Біоетика» в Інституті біотехнологій Університету Анкари. Відзначається вплив стрімкого розвитку біотехнологій на повсякденне життя людей, що зумовлює актуальність базових біоетичних знань у цій сфері.

Курси біотехнологій та етики викладають у декількох університетах Туреччини, водночас поєднання обидвох курсів є рідкістю. Вперше міждисциплінарний підхід до викладання курсу біоетики застосовано в Інституті біотехнологій Університету Анкари. Окреслено мету вивчення курсу, навчальну методика, тематику лекцій і семінарських занять, навчальні ресурси, описані особливості оцінювання знань студентів. Так, зазначено, що метою курсу є збільшення поінформованості студентів про нормативні аспекти, моральні дилеми та їх ідентифікацію, формування вмінь і навиків аналізу, обґрунтування та критичної оцінки. Серед тем, які вивчаються на лекційних і семінарських заняттях, – поняття та основні засади біоетики, вступ до проблем та історії біоетики, соціальний дарвінізм та інші приклади зловживання наукою, значення генної етики, етичні принципи в галузі соціальних досліджень.

У статті наведені результати дослідження ставлення студентів до вивчення курсу біоетики. Зокрема, проаналізовано підсумки вивчення студентами курсу біоетики протягом 2005–2013 рр., а саме: кількість студентів, які опанували дисципліну; процентне співвідношення за критерієм статі, типом навчальних програм тощо. Охарактеризовано порядок анкетування студентів, яке здійснюється наприкінці вивчення курсу (анкети містять запитання, поділені на чотири блоки: змістове наповнення та методологія курсу, атмосфера в аудиторії, відгуки викладачів і загальні зауваження до вивчення курсу).

Ключові слова: вивчення біоетики, біотехнології, Туреччина.

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Отрасль биотехнологий и последипломный курс биоэтики в Турецкой Республике: некоторые аспекты

Освещены особенности преподавания курса «Биоэтика» в Институте биотехнологий Университета Анкары. Отмечается влияние стремительного развития биотехнологий на повседневную жизнь людей, что обуславливает актуальность базовых биоэтических знаний в этой сфере.

Курсы биотехнологий и этики преподают в нескольких университетах Турции, одновременно сочетание обоих курсов – редкость. Впервые междисциплинарный подход к преподаванию курса биоэтики применен в Институте биотехнологий Университета Анкары. Охарактеризованы цель изучения курса, учебная методика, тематика лекций и семинарских занятий, учебные ресурсы, изложены особенности оценки знаний студентов. Так, отмечено, что задачами курса являются повышение информированности студентов о нормативных аспектах, моральных дилеммах и их идентификации, формирование умений и навыков ана-

лиза, обоснования и критической оценки. Среди тем, которые изучаются на лекционных и семинарских занятиях, – понятие и основные принципы биоэтики, введение к проблемам и истории биоэтики, социальный дарвинизм и другие примеры злоупотребления наукой, значение геномной этики, этические принципы в области социальных исследований.

В статье приведены результаты исследования отношения студентов к изучению курса биоэтики. В частности, проанализированы итоги изучения студентами курса биоэтики в течении 2005–2013 гг., а именно: количество студентов, овладевших дисциплиной, процентное соотношение по критериям пола, типа учебных программ. Освещен порядок анкетирования студентов, которое осуществляется в конце изучения курса (анкеты содержат вопросы, разделенные на четыре блока: содержательное наполнение и методология курса, атмосфера в аудитории, отзывы преподавателей, общие замечания к изучению курса).

Ключевые слова: изучение биоэтики, биотехнологии, Турция.