

## Appendix B. Answers with no changes after the course

1. Recombinant DNA statements. It is acceptable to combine genes:					2. Cloning statements. Cloning plants is acceptable for:			
The same plant species			The same animal species		Food for human consumption		Medical purposes	
Answer	Before	After	Before	After	Before	After	Before	After
Totally Disagree	0.9	1.4	3.3	3.3	2.8	2.4	0.9	0.9
Disagree	1.4	.5	6.2	7.7	14.7	10.9	2.4	1.4
Neutral	13.7	11.4	17.1	25.4	20.9	18.0	7.6	7.6
Agree	32.7	35.5	38.6	30.1	24.2	30.8	35.5	28.4
Totally Agree	51.2	51.2	34.8	33.5	37.4	37.9	53.6	61.6
3. Genetic manipulation statements. It is acceptable to direct the genetic material of an organism by:								
Inserting a foreign gene			Blocking expression of an existing gene		Using selective breeding programs		Artificial insemination	
Answer	Before	After	Before	After	Before	After	Before	After
Totally Disagree	14.2	9.5	2.4	1.4	10.4	5.7	2.4	2.9
Disagree	27.5	24.8	9.0	10.0	15.2	18.5	4.3	8.6
Neutral	29.4	31.0	31.3	25.1	29.9	38.9	23.2	17.1
Agree	17.1	21.4	38.9	37.4	28.0	21.3	40.8	41.9
Totally Agree	11.8	13.3	18.5	26.1	16.6	15.6	29.4	29.5
4. Cloning animals is an acceptable form of reproduction for:								
Food for human consumption			Food for animal feed		Maintaining purity in show breeds		Medical research uses	
Answer	Before	After	Before	After	Before	After	Before	After
Totally Disagree	12.3	5.2	9.0	3.3	10.0	5.2	25.6	1.4
Disagree	28.0	25.6	24.6	20.9	17.5	16.1	36.5	5.7
Neutral	22.3	30.8	25.6	35.5	19.0	25.6	24.2	21.3
Agree	20.4	20.9	25.1	23.7	25.6	28.0	7.1	31.3
Totally Agree	17.1	17.5	15.6	16.6	28.0	25.1	6.6	40.3
5. Genetically altered food statements								
It is acceptable to genetically engineer plants for food				Genetically altered food should be labeled		Genetically altered food is superior to traditionally		
Answer	Before		After	Before	After	Before		After
Totally Disagree	2.4		1.9	0.5	0.9	25.6		14.2
Disagree	10.4		9.0	2.4	1.9	36.5		28.4
Neutral	37.0		32.7	3.8	3.3	24.2		35.5
Agree	30.8		37.4	19.4	17.5	7.1		13.3
Totally Agree	19.4		19.0	73.9	76.3	6.6		8.5
6. Altered food statements								
Cloning plants is acceptable for food for human consumption					Cloning animals is an acceptable form of reproduction for food for human consumption			
Answer	Before		After		Before		After	
Totally Disagree	3.8		0.9		16.1		7.1	
Disagree	14.2		11.4		31.8		33.2	
Neutral	32.2		35.5		27.5		33.2	
Agree	31.3		29.9		16.1		16.6	
Totally Agree	18.5		22.3		8.5		10.0	
7. Legal Issues of Biotechnology statements. An individual's genetic profile should be available to:					8. It is acceptable to patent a genetically altered:			

	The individual		Insurance companies		Bacteria		Plant		Animal such as a mouse		Animal such as a monkey		
Answer	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
Totally Disagree	0	1.4	18.0	14.2	5.7	6.6	3.8	5.2	9.0	8.1	10.9	9.5	
Disagree	0.5	0.9	24.6	29.4	15.6	14.7	10.9	8.5	20.9	26.5	20.9	28.4	
Neutral	8.1	6.6	30.3	28.9	22.3	20.9	25.6	21.3	30.3	23.2	29.4	23.7	
Agree	28.0	28.4	17.5	13.7	32.2	32.7	36.0	38.9	24.6	24.6	24.2	21.3	
Totally Agree	63.5	62.6	9.5	13.7	24.2	25.1	23.7	26.1	15.2	17.5	14.7	17.1	
9. Risks of Biotechnology statements.													
10. The risk of genetic engineering is:													
Genetically altered organisms													
Present a health hazard				Outweighed by the benefits		Minimal due to strict safety regulations		That Biotechnology may contribute to the disappearance of small farms		That society's tolerance of people with disabilities will decrease			
Answer	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
Totally Disagree	6.6	3.3	1.9	1.9	3.3	0.9	2.8	3.8	4.7	5.7			
Disagree	10.0	11.8	12.8	8.5	9.0	10.9	17.1	18.5	20.4	17.1			
Neutral	31.8	35.5	42.2	40.3	34.1	27.0	26.5	25.6	46.9	37.4			
Agree	23.2	34.1	32.2	29.9	43.1	46.0	39.8	34.1	20.9	28.4			
Totally Agree	28.4	15.2	10.9	19.4	10.4	15.2	13.7	18.0	7.1	11.4			
11. Benefits of Biotechnology statements. Biotechnology may:													
Alleviate world food shortages													
Create new job opportunities													
Answer	Before				After				Before				After
Totally Disagree	0.5				0				1.4				.5
Disagree	1.9				3.3				2.8				1.4
Neutral	17.5				13.3				12.3				8.5
Agree	37.4				39.3				37.4				38.9
Totally Agree	42.7				44.1				46.0				50.7

Perceptions and attitudes		Item
1	Genetic manipulation statements	<i>It is acceptable to direct the genetic material of an organism by:</i>
		a) Inserting a foreign gene
		b) Blocking expression of an existing gene
		c) Using selective breeding programs
		d) Artificial insemination
2	It is acceptable to combine genes between	<i>It is acceptable to combine genes between:</i>
		a) The same plant species
		b) Different plant species
		c) The same animal species
		d) Different animal species
3	Cloning statements	<i>Cloning plants is acceptable for:</i>
		a) Food for human consumption.
		b) Non-food products
		c) Medical purposes
		<i>Cloning animals is an acceptable form of reproduction for:</i>
		a) Food for human consumption
		b) Food for animal feed
		c) Maintaining purity in show breeds
4	Genetically altered food statements	d) Medical research uses
		<i>Genetically altered food should be labeled</i>
		a) Genetically altered food is superior to traditionally
		b) Biotechnology may alleviate world food shortages.
		c) It is acceptable to genetically engineer plants for food
		d) Cloning plants is acceptable for food for human consumption
		e) Genetically altered organisms such as animals are safe to eat
5	Legal Issues of Biotechnology statements	f) Cloning animals is an acceptable form of reproduction for food for human consumption
		<i>An individual's genetic profile should be available to:</i>
		a) The individual
		b) Potential carriers
		c) Insurance companies
		<i>It is acceptable to patent a genetically altered:</i>
		a) Bacteria
		b) Plant
		c) Animal such as a mouse
6	Risks of Biotechnology statements	d) Animal such as a monkey
		<i>Genetically altered organisms:</i>
		a) Disrupt the balance of nature
		b) Present a health hazard
		<i>The risk of genetic engineering is:</i>
		Outweighed by the benefits
		b) Minimal due to strict safety regulations
		c) Biotechnology may contribute to the disappearance of small farms
7	Benefits of Biotechnology statements	d) The risk of genetic engineering is that society's tolerance of people with disabilities will decrease
		<i>Biotechnology may:</i>
		Enhance the quality of life
		b) Alleviate world food shortages
		Create new job opportunities

Percepciones y actitudes		Item
1	Enunciados sobre manipulación genética	Es aceptable dirigir el material genético de un organismo mediante:
		a) Insertar un gen extraño
		b) Bloquear la expresión de un gen existente
		c) Utilizar programas de crianza selectiva
		d) Inseminación artificial
2	Es aceptable combinar genes	Es aceptable combinar genes entre:
		a) La misma especie de planta
		b) Diferentes especies de plantas
		c) La misma especie de animal
		d) Diferentes especies de animales
3	Enunciados sobre clonación	Clonar plantas es aceptable para:
		a) Alimento para consumo humano
		b) Productos no alimentarios
		c) Fines médicos
		La clonación de animales es una forma aceptable de reproducción para:
		a) Alimento para consumo humano
		b) Alimento para animales
		c) Mantener la pureza en razas de exhibición
		d) Investigación médica
4	Enunciados sobre organismos genéticamente modificados	Los alimentos modificados genéticamente deben estar etiquetados:
		a) Los alimentos modificados genéticamente son superiores a los tradicionales
		b) La biotecnología puede ayudar a aliviar la escasez mundial de alimentos
		c) Es aceptable manipular genéticamente plantas para obtener alimentos
		d) La clonación de plantas es aceptable para el consumo humano
		e) Los organismos modificados genéticamente, como los animales, son seguros para comer
		f) La clonación de animales es una forma aceptable de reproducción para alimento para consumo humano
5	Enunciados sobre aspectos legales de la biotecnología	El perfil genético de un individuo debe estar disponible para:
		a) El individuo
		b) Posibles portadores
		c) Compañías de seguros
		Es aceptable patentar un organismo modificado genéticamente si es:
		a) Bacteria
		b) Planta
		c) Animal como un ratón
		d) Animal como un mono
6	Enunciados sobre los riesgos de la biotecnología	Los organismos modificados genéticamente:
		a) Alteran el equilibrio de la naturaleza
		b) Presentan un riesgo para la salud
		The risk of genetic engineering is:
		a) Alteran el equilibrio de la naturaleza
		b) Presentan un riesgo para la salud
		a) Alteran el equilibrio de la naturaleza
		b) Presentan un riesgo para la salud
7	Enunciados sobre los beneficios de la biotecnología.	La biotecnología puede:
		a) Mejorar la calidad de vida
		b) Aliviar la escasez mundial de alimentos
		c) Crear nuevas oportunidades de empleo