

Supplemental Material

CBE—Life Sciences Education

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Supplementary Index

TableS1_Jargon.pdf

This table lists all the jargon terms used in this study, the course in which the term was taught, the number of students defining the term, the category of the term, and the percentage of students defining this term who thought they understood. (PDF, 2 pages, 59 KB).

TableS2_Jargon.pdf

This table lists categories of terms used in the study, sample sizes, the median and mean percentage of students defining the terms who thought they understood them, and the results of Kruskal-Wallis tests comparing % thought understood of these terms to those in every other category. (PDF, 1 page, 46 KB).

Table S3_Jargon.pdf

This table lists all 54 terms that were coded for accuracy. For each term, the sample size, category, % correct, % incorrect, % unanswered, % partially correct, % match, and % mismatch values are listed. (PDF, 3 pages, 68 KB).

Table S1. List of all jargon terms used in the study, along with the course (200 or 234), sample size (*n*), jargon category, and % thought understood

Term	Course	<i>n</i>	Category	% Thought Understood
Actin	200	17	Molecular	100.0
Activator	200	17	Incompatible Ambiguity, Molecular	58.82
Adaptation	200	11	Incompatible Ambiguity	81.82
Allele	234	24	Information	100.00
Allosteric	200	15	Molecular, Process	26.67
Assay	200	19	Practice	26.32
CDK (Cyclin-dependent kinase)	200	19	Molecular	68.42
Centromere	200	17	Molecular	100.0
Centrosome	200	14	Organelle	100.0
Checkpoint	200	15	Incompatible Ambiguity	93.33
Chemiosmotic coupling	200	12	Process	66.67
Chromatid	200	10	Organelle	70.00
Chromatin	200	19	Organelle	94.74
Chromosome	200	10	Organelle	100.0
Clathrin	200	12	Molecular	83.33
Cohesin	200	19	Molecular	84.21
Complementary	200	17	Incompatible Ambiguity	76.47
Complementation	234	19	Incompatible Ambiguity	100.0
Conformation	200	21	Incompatible Ambiguity	80.95
Cyclin	200	13	Molecular	38.46
Diploid	234	34	Information	100.0
Domain	200	22	Incompatible Ambiguity	77.27
Dominant	234	28	Incompatible Ambiguity, Information	100.0
Dynein	200	20	Molecular	90.00
Endosome	200	17	Organelle	76.47
Epitope	200	13	Molecular	0.00
Euchromatin	200	22	Organelle	81.82
Exon	200	15	Information	80.00
Experimental control	200	14	Practice	100.0
Frequency	234	39	Incompatible Ambiguity, Information	94.87
Gain-of-function mutation	200	20	Practice	80.00
Gene	200	14	Information	100.0
Gene regulation	200	12	Process	83.33
Genome	200	14	Information	92.86
Genome sequence	234	30	Information	83.33
Hydrophobic interaction	200	12	Molecular	100.0
Intron	200	18	Information	94.44
Kinase	200	13	Molecular	76.92
Kinesin	200	19	Molecular	68.42

Kinetochores	200	16	Molecular	68.75
Ligand	200	17	Molecular	41.18
Locus	234	21	Information	85.71
Lysosome	200	16	Organelle	93.75
Macromolecular complex	200	20	Molecular	40.00
Matrix	200	14	Organelle	85.71
Microtubule	200	11	Molecular	90.91
Model	200	17	Incompatible Ambiguity, Practice	82.35
Most Likely	234	38	Incompatible Ambiguity, Practice	92.11
Mutation	200	12	Process	100.0
Myosin	200	13	Molecular	61.54
Necessary	200	23	Incompatible Ambiguity, Practice	100.0
Non-covalent interaction	200	14	Molecular	85.71
Oncogene	234	29	Information	75.86
Parental	234	24	Incompatible Ambiguity, Information	95.83
Phenotype	200	13	Information	84.62
Polarity	200	22	Incompatible Ambiguity	95.45
Protease	200	13	Molecular	38.46
Proto-oncogene	234	25	Information	64.00
Recombinant	234	21	Information	100.0
Repressor	200	15	Incompatible Ambiguity, Molecular	80.00
Secretion	200	15	Process	80.00
SNARE	200	11	Molecular	63.64
Stroma	200	20	Organelle	90.0
Sufficient	200	11	Incompatible Ambiguity	100.0
Template	200	12	Incompatible Ambiguity, Information	100.0
Theory	200	16	Incompatible Ambiguity, Practice	93.75
Transcription	200	18	Incompatible Ambiguity, Information	100.0
Translation	200	13	Incompatible Ambiguity, Information	100.0
Tubulin	200	13	Molecular	92.31
Tumor suppressor	234	26	Information	76.92
Vacuole	200	12	Organelle	66.67
Vesicle	200	19	Organelle	94.74

Table S2. Jargon categories and students' perceived understanding of them. The median and mean percent of students who thought they understood the term (% thought understood) is reported here. Higher values mean that more students reportedly understood the term. The chi-square (χ^2) statistic of the Kruskal-Wallis rank sum test is reported, and *p*-values of 0.008 or less (in bold and italics) are considered significant. *P*-values between 0.008 and 0.10 are considered marginally significant.

Category	<i>n</i>	Median % Thought Understood	Mean % Thought Understood	χ^2	<i>p</i>
Incompatible Ambiguity	20	94.3	90.2	4.89	0.03
Molecular	23	68.8	67.7	10.9	<0.008
Practice	7	92.1	82.1	0.15	0.70
Organelle	11	90.0	86.7	0.24	0.62
Process	7	83.3	79.5	0.03	0.86
Information	19	94.9	91.0	6.47	0.01

Table S3. Terms coded for accuracy of student definition. Fifty-four terms were coded in total: 19 information terms, 23 molecular terms, and 12 terms that were incompatible ambiguity and neither molecular nor information.

Term	Course	<i>n</i>	Jargon Category	% Correct	% Incorrect	% Unanswered	% Partially Correct	% Match	% Mismatch
Actin	200	17	Molecular Incompatible	58.82	5.88	9.09	35.29	58.82	5.88
Activator	200	17	Molecular Incompatible	11.76	52.94	17.65	17.65	58.82	23.53
Adaptation	200	11	Ambiguity	0.00	81.82	9.09	9.09	18.18	72.73
Allele	234	24	Information	16.67	16.67	0.00	66.67	16.67	16.67
Allosteric	200	15	Molecular, Process	13.33	13.33	53.33	13.33	73.33	13.33
CDK (Cyclin-dependent kinase)	200	19	Molecular	42.11	10.53	21.05	26.32	73.68	0.00
Centromere	200	17	Molecular Incompatible	11.76	29.41	0.00	58.82	11.76	29.41
Checkpoint	200	15	Ambiguity	0.00	13.33	6.67	80.00	6.67	13.33
Clathrin	200	12	Molecular	66.67	16.67	8.33	8.33	83.33	8.33
Cohesin	200	19	Molecular	63.16	15.79	0.00	21.05	68.42	10.53
Complementary	200	17	Incompatible Ambiguity	5.88	52.94	5.88	35.29	29.41	35.29
Complementation	234	19	Incompatible Ambiguity	21.05	15.79	0.00	63.16	21.05	15.79
Conformation	200	21	Incompatible Ambiguity	4.76	38.10	4.76	52.38	29.41	29.41
Cyclin	200	13	Molecular	23.08	23.08	30.77	23.08	61.54	15.38
Diploid	234	34	Information Incompatible	79.41	2.94	0.00	17.65	79.41	2.94
Domain	200	22	Incompatible Ambiguity	9.09	50.00	0.00	40.91	31.82	27.27
Dominant	234	28	Incompatible Ambiguity, Information	25.00	17.86	0.00	57.14	25.00	17.86

Dynein	200	20	Molecular	65.00	25.00	5.00	5.00	65.00	30.00
Epitope	200	13	Molecular	0.00	7.69	92.31	0.00	100.00	0.00
Exon	200	15	Information Incompatible Ambiguity,	33.33	20.00	6.67	40.00	46.67	13.33
Frequency	234	39	Information	43.59	5.13	0.00	51.28	46.15	2.56
Gene	200	14	Information	42.86	28.57	0.00	28.57	42.86	28.57
Genome	200	14	Information	57.14	14.29	14.29	14.29	64.29	21.43
Genome sequence	234	30	Information	60.00	20.00	0.00	30.00	66.67	13.33
Hydrophobic interaction	200	12	Molecular	50.00	33.33	0.00	16.67	50.00	33.33
Intron	200	18	Information	33.33	38.89	0.00	27.78	33.33	38.89
Kinase	200	13	Molecular	30.77	38.46	15.38	15.38	53.85	30.77
Kinesin	200	19	Molecular	63.16	15.79	5.26	15.79	78.95	5.26
Kinetochores	200	16	Molecular	50.00	25.00	12.50	12.50	68.75	18.75
Ligand	200	17	Molecular	0.00	41.18	41.18	17.65	52.94	29.41
Locus	234	21	Information	52.38	4.76	0.00	42.86	57.14	0.00
Macromolecular complex	200	20	Molecular	5.00	30.00	15.00	50.00	25.00	25.00
Microtubule	200	11	Molecular Incompatible	63.64	0.00	9.09	27.27	90.91	0.00
Model	200	17	Ambiguity, Practice Incompatible	0.00	23.53	17.65	58.82	11.76	29.41
Most Likely	234	38	Ambiguity, Practice	50.00	7.89	0.00	42.11	47.37	10.53
Myosin	200	13	Molecular Incompatible	46.15	30.77	15.38	7.69	84.62	7.69
Necessary Non-covalent interaction	200	23	Ambiguity, Practice Molecular	78.26	0.00	0.00	21.74	78.26	0.00
Oncogene	234	29	Information Incompatible	34.48	10.34	0.00	55.17	27.59	17.24
Parental	234	24	Ambiguity,	45.83	37.50	0.00	16.67	50.00	33.33

Phenotype	200	13	Information Information Incompatible	30.77	23.08	0.00	46.15	46.15	7.69
Polarity	200	22	Ambiguity	40.91	9.09	9.09	40.91	45.45	13.64
Protease	200	13	Molecular	46.15	23.08	15.38	15.38	38.46	46.15
Proto-oncogene	234	25	Information	24.00	20.00	8.00	48.00	24.00	28.00
Recombinant	234	21	Information Incompatible Ambiguity,	66.67	14.29	0.00	19.05	66.67	14.29
Repressor	200	15	Molecular	33.33	40.00	0.00	26.67	26.67	53.33
SNARE	200	11	Molecular	63.64	0.00	0.00	36.36	45.45	18.18
Sufficient	200	11	Incompatible Ambiguity	45.45	18.18	0.00	36.36	45.45	18.18
Template	200	12	Information Incompatible Ambiguity,	16.67	50.00	0.00	33.33	16.67	50.00
Theory	200	16	Information Incompatible Ambiguity, Practice	31.25	25.00	6.25	37.50	25.00	37.50
Transcription	200	18	Information Incompatible Ambiguity,	33.33	27.78	16.67	22.22	33.33	44.44
Translation	200	13	Information	61.54	15.38	0.00	23.08	61.54	15.38
Tubulin	200	13	Molecular	84.62	0.00	0.00	15.38	76.92	7.69
Tumor suppressor	234	26	Information	34.62	15.38	3.85	46.15	42.31	11.54