## Appendix II Words that are often confused

Most of these words cause difficulties for native English speakers; indeed, some of them are more likely to be problematic for native speakers than for Spanish speakers. Words that are often misinterpreted due to the influence of Spanish are listed in the next appendix, *False friends*.

EXAMPLE
The brain's plasticity gives it the ability to adapt after focal damage.
The combined capacity of the third and lateral ventricles is about 20 ml in normal adults.
Some drugs interfere with calcium absorption.
Adsorption by hemofiltration devices must be taken into account when dosing some drugs.
This test always yields the correct results: its accuracy is 100%. In well-reported results, the number of digits after the decimal point tells us the precision (but not the accuracy!) of the measurement.
Administer the drug subcutaneously if intramuscular injection is contraindicated.
The university administrates the laboratory's funding.
Different types of antibiotics affect different types of bacteria in different ways.
The effects of antibiotics are both concentration- dependent and time-dependent.

DEFINITION	EXAMPLE
AFFECTION, AFFECTATION	
Affection: fondness; rarely, disease Affectation: behavior, speech, or writing that is not genuine and aims to impress	He shows great affection for his daughter. Her British accent is an affectation.
ALTERNATELY, ALTERNATIVELY	
Alternately: in an alternating sequence or position  Alternatively: as an alternative	The product was purified by alternately centrifuging and re-suspending in ultrapure water. We could use RT-PCR; alternatively, we could use
	NASBA.
ALTHOUGH, WHILE	
Although: in spite of the fact that	Although they rewrote the manuscript, it was rejected.
While: standard use expresses simultaneity of actions; when used to mean although, while can generate confusion	While they rewrote the manuscript, the authors suspected it would be rejected. (In this case, while can be interpreted as both time-related and whereas.)
AMONG, BETWEEN	
Among: used for the relationships between one element and two or more others Between: used for the relationship between two elements or between more than two elements considered individually	Lower respiratory tract infections are the leading cause of death among all infectious diseases. No differences in mortality were found between the experimental subjects and controls.
AMOUNT, CONCENTRATION, CONTENT, LEVEL	
Amount: total quantity measured	The amount of cerebrospinal fluid drained from the experimental animals was lower than the amount drained from the controls.
Concentration: relative quantity of a substance in a quantity of another substance	There is a positive correlation between the plasma concentration of β-lactam antibiotics and the response of bacterial infections.
Content: total quantity of a substance in a quantity of another substance	The malignant liver lesions had higher fat content than the benign lesions.
Level: position on the vertical axis; position on a scale; sometimes used to mean amount, concentration, or content	Retinol binding protein-4 circulating levels were higher in patients with nonalcoholic fatty liver disease.
AMOUNT, NUMBER	
Amount: uncountable quantity Number: countable quantity	We recorded the amount of fluid drained in 24 h. We recorded the number of SNPs identified.

DEFINITION	EXAMPLE
ANESTHESIOLOGIST, ANESTHETIST, ANAESTHETIST	
Anesthesiologist: (US English) a physician specialized in anesthesiology Anesthetist: (US English) a nurse, technician, or physician trained to administer anesthetics Anaesthetist: (UK English) a physician specialized in anesthesiology	Anesthesiologists usually complete a four-year residency program after obtaining their MD or DC The anesthetist asked the patient to count backward from one hundred.  The anaesthetist was responsible for perioperative care.
AS, LIKE	
As: a conjunction, used before a clause with a subject and a verb	As Smythe et al. <sup>12</sup> reported,
Like: a preposition, used before a noun	Like Smythe et al. <sup>12</sup> , we also found
ASSURE, ENSURE, INSURE, REASSURE  Assure: to affirm something is right to reinforce belief  Ensure: to make sure	They assured me that the reagent would arrive today.  Please ensure that the door to the laboratory is locked when you leave.
Insure: to contract insurance to cover possible losses Reassure: to restore confidence	We need to insure this equipment against theft.  The negative results of the RT-PCR reassured the
	patient.
ATRIUM, ATRIAL, AURICLE, AURICULAR	
The noun atrium (plural, atria) and the adjective atrial (adjective) usually refer to the upper chambers of the heart.  The noun auricle and the adjective auricular refer to the outer projecting part of the ear or to the earshaped appendage projecting from each atrium in the heart.	Atrial flutter is caused by a reentrant rhythm in either atrium.  The left auricle serves as a decompression chamber when left atrial pressure is high.
BECAUSE, SINCE	
Because: used to give the reason for something	She needs to inject insulin because she has diabetes mellitus.
Since: from a point of time in the past; also used to mean because, but this use can generate confusion	Since she was diagnosed with diabetes mellitus, she always carries sweets in her purse. (In this case, since can be interpreted as both time-related and casual.)
BESIDE, BESIDES	
Beside: next to	The operating room is beside the emergency room.
Besides: moreover, in addition to	Besides the residents, a staff physician is always present.

DEFINITION	EXAMPLE
BOTH, THE TWO	
Both: the two together The two: is used to differentiate between or to	Both groups improved after treatment. (In this case, the two would also be correct.) No differences in age, sex, severity of disease,
compare	or comorbidities were found between the two groups. (In this case, both would be incorrect.)
CAN, MAY	
Can: to be able to; used for ability and general possibility	Breast cancer can affect men as well as women.
May: to be possible; used for possibility in a specific case	In light of his symptoms and the results of the physical examination, this man may have breast cancer.
COMPETENCE, COMPETITION	
Competence: having the necessary skill, knowledge, etc.	We hired her because of her competence in statistical analysis.
Competition: rivalry or contest for desired goal	The competition between the two research teams was fierce.
COMPRISE, COMPOSE, CONSIST OF, INCLUDE	
Comprise: include (exhaustive), contain, consist of, or constitute; considered by many to be incorrect in the passive voice	The zygomycoses comprise a diverse group of rare mycotic diseases.
Compose: to make or form by combining things, parts, or elements; often used in the passive	These clusters are composed of paralogous genes, which are probably the products of local gene duplications.
Consist of: to be composed of	Teratomas consist of cells from the three main tissue layers of an embryo.
include: nonexhaustive	Early warning signs of schizophrenia include social withdrawal; hostility or suspiciousness; oversleeping or insomnia; and inappropriate laughter or crying.
CONTINUAL, CONTINUOUS	
Continual: occurring regularly or frequently	The patient's reflexes were continually monitored (a neurologist tested him every 3 hours).
Continuous: nonstop	The pH in the perfusate was continuously monitored throughout the experiment.
DISCREET, DISCRETE	
Discreet: prudent	Health is a private matter; medical professionals need to be discreet.
Discrete: distinct; defined only for an isolated set of points	Genotypic data support the existence of six stable discrete typing units (DTU) in Trypanosoma cruzi.

DEFINITION	EXAMPLE
DOSE, DOSAGE	
Dose: quantity of medicine taken at one time	The maximum daily dose of acetaminophen is 4000 mg in adults.
Dosage: administration of medicine in doses; determining the quantity, frequency, and number of doses	He asked for information about the dosage of acetaminophen for children on CRRT.
DOUBLE, DUPLICATE	
Double: twofold	When asthma control deteriorates, clinicians may instruct patients to take a double dose of their
Duplicate: an exact copy of	inhaled corticosteroid medication for a short period. The region of mRNA that encodes the protein is a duplicate of the exon region of the DNA since the introns are removed from the mRNA.
DURING, FOR	
During: preposition used before a noun; it does not tell us how long something took or lasted For: preposition used with a period to say how long something took or lasted	During my postdoctoral fellowship, I discovered an enzyme that I worked under Dr. Diamond for three years.
EAR TUBE, EAR CANAL, AUDITORY TUBE	
Ear tube: tympanostomy tube	An ear tube creates an airway that ventilates the middle ear and prevents the accumulation of fluids behind the eardrum.
Ear canal: external auditory meatus	Due to its relative exposure to the outside world, the ear canal is susceptible to diseases.
Auditory tube: Eustachian tube	The auditory tube links the nasopharynx to the middle ear.
e.g., i.e.	
e.g.: abbreviation of the Latin term exempli gratia, which means "for example"	Signs of overdose (e.g., slow heart beat, blue lips or fingertips, deep snoring or gurgling) require immediate action.
i.e.: abbreviation of the Latin term id est, which means "in other words"	Hypoglycemia (i.e., fasting glucose < 4.0 mmol/l) is a medical emergency.
Note: both abbreviations are mostly used within parentheses	
EXCISE, RESECT	
Excise: to remove (e.g., a tumor) by cutting	The tumor was excised, and the patient remained free of disease until death from unrelated causes 22 years later.
Resect: to remove part of an organ or structure	We resect the tissue that contains the cancer from the lungs.

DEFINITION	EXAMPLE
EXPERIENCE, EXPERIMENT	
Experience: knowledge gained from what you have observed	Our experience shows that nosocomial infection rates can be improved through an educational program.
Experiment: a test, trial, or tentative procedure aimed at discovering something unknown	This experiment investigated whether immunostimulation with TLR-2 agonists under conditions of sterile inflammation affects the immune response and remote organ inflammation.
EXPOSITION, EXPOSURE, EXHIBITION	
Exposition: expounding or explaining	Her exposition of the role of reverse transcriptase in DNA sequencing was helpful.
Exposure: being exposed	Exposure to ionizing radiation during pregnancy can result in miscarriage or malformation.
Exhibition: displaying or showing	The authors of the best posters in the exhibition were invited to publish their work in the society's journal.
EXTENSION, EXTENT	
Extension: the act or state of extending Extent: the degree to which something extends	The extension of disease through the bowel wall indicates a poor prognosis.  It is crucial to determine the extent of disease.
FEWER, LESS	
Fewer: less in number (used with countable nouns) Less: less in amount (used with uncountable nouns)	Women reported fewer adverse effects than men. Less fluid formed in the pleural space of treated animals.
FARTHER, FURTHER	
Farther: to a greater distance	The experienced colonoscopist was able to reach much farther than the trainee.
Further: additional	The trainee made further progress in the succeeding weeks.
FROM, OF	
These two prepositions have many, sometimes overlapping meanings. Read them in a good dictionary and pay attention to how they are used	Copying of an article = copying the entire article Copying from an article = copying parts of the article
GENDER, SEX	
Gender: a social construct Sex: a biological concept	Masculine and feminine are gender categories. Male and female are sex categories.

DEFINITION	EXAMPLE
HEAR, LISTEN TO	
Hear: perceive with the ears  Listen to: direct the attention of the ears to	I heard on the radio that a hospital in Barcelona had made an exciting discovery. I listen to the radio while I'm setting up my experiments.
HUMAN, HUMANE	
Human: related to people  Humane: characterized by compassion for people and animals	The Declaration of Helsinki outlines guidelines for research on human subjects. The Office of Laboratory Animal Welfare guarantees the humane treatment of animals used for research.
IF, WHETHER	
If: introduces conditional (yes or no), cannot be used before infinitives or after prepositions Whether: (yes or no), can be used with infinitives and prepositions	We did not know if/whether the animals would survive. We did not know whether the animals would die after the first dose or after the second dose (only two possibilities). We did not know if the animals would die after the first or second dose (three possibilities—maybe the animals would not die).
Whether or not: in most cases, or not can be omitted. However, when we want to express the idea "both if or if not" we need to use whether or not.	We cannot decide whether to include the chief as an author.  I would like to talk about whether you should apply for the fellowship.  Call me if you can come to my talk in Salamanca.  (Conditional.)  Call me whether or not you can come to my talk in Salamanca. (Both if and if not.)
INCIDENCE, PREVALENCE	
Incidence: the number of new cases of a disease in a population in a specified period of time Prevalence: the total number of cases of a disease in a given population at a specific time	The incidence of AIDS in Spain is about 2.0 cases per 100,000 population per year. The estimated prevalence of AIDS among adults in Spain is 0.4%.

DEFINITION	EXAMPLE
INCREASE, AUGMENT, INCREMENT, ENHANCE, IMPROVE	
Increase: to make or become greater	His systolic blood pressure increased from 100 mmHg to 120 mmHg.
Augment: to make greater, especially by addition from the outside Increment: to increase by discrete amount	We examined whether estrogen withdrawal augments parathyroid-induced IL-6 production. The dose was incremented by 1 mg/kg to reach a final dose of 12 mg/kg on the fourth day.
Enhance: to increase a good quality	All patients reported enhanced self-esteem after the sessions.
Improve: to make better	Cerebral blood flow improved after treatment.
ILLEGIBLE, UNREADABLE	
Illegible: impossible to read because of poor handwriting, faded print, etc.  Unreadable: impossible to read because of poor writing	The pharmacist had to phone the hospital because the prescription was illegible. Somebody has to supervise her reports: her last report was unreadable.
IMMUNIZE, INOCULATE, VACCINATE	
Immunize: to render immune  Inoculate: to introduce serum, vaccine, or antigenic substance to increase immunity; to implant microorganisms or infectious material on a culture medium	Young children are immunized to many diseases through natural contact with microbes. We inoculated 15 male Wistar rats with anthrax.
Vaccinate: to inoculate with a vaccine (e.g., modified virus) as a preventive or sometimes curative measure	All personnel dealing with patients must be vaccinated against the flu.
INTERVAL, PERIOD	
Interval: an intervening period of time Period: an interval of time characterized by the occurrence of a certain condition, event, or phenomenon	Animals' heart rate was measured at ten- minute intervals for a period of 30 minutes after administration of verapamil.
LOCATE, LOCALIZE	
Locate: determine the location of Localize: confine	We located the foreign body in the ileum. We hypothesized we could decrease localized bleeding by using blended current at the end of the sphincterotomy.
LOOK, SEE	
Look at: direct the attention of the eyes to See: perceive with the eyes	We looked at the specimen under the microscope but we couldn't see any abnormalities.

DEFINITION	EXAMPLE
MADE FROM, MADE OF, MADE OUT OF	
Made from: used when the material undergoes an essential change so that it is no longer recognizable	Wine is made from grapes.
Made of: used when the material is recognizable  Made out of: implies the transformation of an  object	This heart valve is made of titanium.  Dr. McGyver made a tracheostomy tube out of a ballpoint pen.
MINIMAL, MINIMUM MAXIMAL, MAXIMUM	
Minimal, maximal: adjectives, although minimum and maximum are more common	Decide on the minimal (or minimum) number of samples you can use and the maximal (or maximum) number you are prepared to invest in.
Minimum and maximum: nouns and adjectives	Our goal is to keep complications to a minimum.
MOLALITY, MOLARITY	
Molality: number of moles of solute per kilogram of solvent	Solutions labeled with molal concentration are denoted with a lower case m: a 1.0 m solution contains 1 mole of solute per kilogram of solvent.
Molarity: number of moles of solute per liter of solution	Solutions labeled with the molar concentration are denoted with a capital M: <i>a 1.0 M solution contains 1 mole of solute per liter of solution.</i>
MUCOUS, MUCUS, MUCOSA	
<i>Mucous</i> : adjective <i>Mucus</i> : noun	The mucous membranes secrete mucus.  Mucus is a viscous mixture of mucins, water, electrolytes, epithelial cells, and leukocytes.
<i>Mucosa</i> : noun, pl <i>mucosae</i> or <i>mucosas</i> = mucous membrane	Grafts from the oral mucosa can be used to reconstruct the urethra.
MULTIVARIATE, MULTIVARIABLE	
Multivariate: refers to a statistical analysis with multiple outcomes	Multivariate models are appropriate for data from longitudinal studies with an outcome measured for the same individual at multiple time points (repeated measures) or for nested/clustered data with multiple individuals in each cluster.
Multivariable: refers to a statistical analysis with multiple predictors	A multivariable linear regression model has a continuous outcome and multiple continuous or categorical predictors.
NOTICE, REALIZE	
Notice: to pay attention to, to take notice of	They didn't notice the flaw in their experimental design.
Realize: to be aware of	When they realized their design was flawed, they understood why their results made no sense.

DEFINITION	EXAMPLE
OPTIMAL, OPTIMUM	
Optimal: adjective	We sought to determine the optimal (or optimum) biologic dose of sirolimus prior to prostate surgery.
Optimum: noun and adjective	They are not functioning at their optimum.
ORTHOTOPIC, ORTHOTROPIC	
Orthotopic: in the correct or normal position	In orthotopic heart transplantation, the patient's heart is always removed.
Orthotropic: showing growth in direct line with the stimulus	Timely orthotropic procedures can often eliminate the need for orthodontic procedures.
OSCILLATE, RANGE, VARY	
Oscillate: to swing back and forth at a regular speed	Basal insulin level oscillates with a regular period of three to six minutes.
Range: to vary within certain limits	The normal range for red blood cells in women ranges from 4.2 to 5.4 million cells per microliter of blood.
Vary: to change, to differ	Concentrations of enzymes involved in both phase I reactions vary significantly between individuals with normal hepatic function.
PARAMETER, VARIABLE	
Parameter: a potential variable to which a particular value can be assigned to determine the value of other variables	Parameters do not relate to actual measurements or attributes but to quantities defining a theoretical model.
Variable: values that vary from individual to individual	The dependent variable is often called the response variable.
PATENT, PERMEABLE	
Patent: unobstructed	After the angioplasty procedure, the stenosed artery was patent.
Permeable: with penetrable pores or interstices, etc.	The walls of capillaries are permeable to ions, water, nutrients, and even whole cells.
PERCENT, PERCENTAGE, PERCENTILE	
Percent: a fraction expressed as a number of hundredths	Eighty-five percent of the patients were men.
Percentage: a rate or proportion	A large percentage of patients developed complications.
Percentile: Any of the 100 equal parts into which the range of the values of a set of data can be divided to show their distribution	His head circumference was in the 95th percentile for his age.

DEFINITION	EXAMPLE
PERIODIC, PERIODICAL	
Periodic: recurring at intervals of time	We investigated whether periodic intra-articular Ctp injections could delay disease progression in patients with osteoarthritis.
Periodical: a journal issued at regularly recurring intervals	He spoke at the International Conference on Biomedical Periodicals.
PHOSPHORUS, PHOSPHOROUS	
Phosphorus: noun	Calcitonin helps control the levels of calcium and phosphorus in the blood.
Phosphorous: adjective	Phosphorous acid is an intermediate in the preparation of other phosphorus compounds.
PREDOMINATE, PREDOMINANT, PREDOMINANTLY, PREDOMINATELY	
Predominate: verb	The 1b genotype, which predominates in Japan, was the most widely distributed genotype and accounted for 58% of all isolates sequenced.
Predominant: adjective	The predominant vacA genotype was s1c/m1b (22/30, 73.3%).
Predominantly or predominately: adverb	Lymphomas predominantly affect men in their second and third decades of life.
PRINCIPLE, PRINCIPAL	
Principle: a fundamental law from which others are derived	The principle that the simplest explanation for a phenomenon is the best one is called Occam's razor.
<i>Principal</i> : main	The principal contraindication for thorazine is depression.
PROSTATE, PROSTRATE, PRONE, SUPINE, RECUMBENT	
Prostate: gland surrounding neck of the bladder in male mammals	Enlargement of the prostate may interfere with urination.
Prostrate: lying face down (strongly suggests submission)	The terrorist made everybody lie prostrate on the floor.
Prone: lying face down	Stereotactic breast biopsy is usually done with the patient in the prone position.
Supine: lying face up	To insert a central line in the internal jugular vein, place the patient in the supine position.
Recumbent: reclining, lying	Patients who spend weeks or months in a recumbent position are likely to develop urinary tract problems.

DEFINITION	EXAMPLE
REPRESENT, BE	
Represent: to designate, stand for, denote	In this box-and-whisker plot, the ends of the whiskers represent the minimum and maximum of all the data.
Be: to exist, to equal	Methicillin is a narrow-spectrum beta-lactam antibiotic of the penicillin class.
REABSORPTION, RESORPTION	
Reabsorption: reclaiming what is taken	In the intestine, PTH increases reabsorption of calcium and inhibits reabsorption of phosphate.
Resorption: remodeling	PTH increases bone resorption of both calcium and phosphate.
REVIEW, REVISE	
Review: to go over critically Revise: to make changes to	We have revised our manuscript; we are grateful for this opportunity to have the referees review it again.
SAFE (SAFETY), SECURE (SECURITY), SURE	
Safe: not dangerous	The drug is safe.
Secure: preventing unwanted intrusion Sure: certain	The database is secure. We are sure that the results are valid.
TEMPORAL, TEMPORARY, TRANSIENT, TRANSITORY	
Temporal: relating to or near the temples of the skull	Temporal arteritis is inflammation and damage to blood vessels that supply the head.
Temporary: suggests an arrangement established with the idea of being changed soon	After the disaster, the school was set up as a temporary hospital.
Transient: suggests something in the process of passing by	A transient ischemic attack usually lasts about 24 hours.
Transitory: suggests an innate characteristic by which a thing, by its very nature, lasts only a short time	Transitory oxygen-glucose deprivation induced both apoptosis and necrosis in cerebellar granule cells.
THAT, WHICH	
That: relative pronoun used only in defining clauses; cannot be used after a preposition Which: relative pronoun used in both defining and non-defining clauses	The fellowship that was advertised in Molecular Genetics has been filled. The experiment, which has never been repeated, yielded some interesting results.

DEFINITION	EXAMPLE
VARIABILITY, VARIATION, VARIANCE	
Variability: condition of being variable	Homologous recombination is a significant source of variability.
Variation: the act, process, or result of varying	We used custom-designed virulence arrays to try to understand the high genotypic variation in streptococci.
Variance: a statistical term referring to the spread of data from the mean	We compared normalization methods for high density oligonucleotide array data based on variance and bias.
Note: Variability and variation are often used interchangeably.	
VARIOUS, VARYING	
Various: different	Various studies have found a strong association between the two variables.
Varying: changing	The widely varying results reflect methodological differences.
VISCID, VISCOUS, VISCUS	
Viscid: adhering, glutinous	The slime layer forms when the amorphous viscid secretion from the bacteria diffuses into the surrounding media.
Viscous: sticky, with high viscosity	Viscous body fluid samples may result in sampling errors and samples with insufficient volume.
Viscus: an internal organ enclosed within a cavity	The liver is the largest abdominal viscus.
WHEREAS, WHILE	
Whereas: although	Whereas Morton's neuroma is much more common in women, neurofibromas are equally distributed between the sexes.
While: usually implies simultaneity, but can also be used to mean although (this figurative can lead to	The orderly restrained the patient while the resident injected the sedative.
confusion in some cases)	Blood pressure was recorded by the nurse while heart rate was automatically recorded. (In this case, whereas would be preferable unless the actions took place simultaneously.)