

# Introduction to Bioinorganic Chemistry

## PwE 2011

### Industrial

Industrial applications of bioinorganic chemistry include:  
- Medicine, pharmaceuticals, food additives, cosmetics, detergents, and  
other products that contain metal ions.

### Environmental

Environmental applications of bioinorganic chemistry include:  
- Removal of heavy metals from water supplies, soil, and air; removal  
of toxic chemicals from industrial wastes; and removal of radioactive  
elements from nuclear waste.

### Space Exploration

Space exploration applications of bioinorganic chemistry include:  
- Development of life support systems for long-term space flights;  
- Design of materials for use in space stations and rockets;  
- Study of the effects of metal ions on living organisms in space;

### Artificial Cells

#### - Prosthetic Devices

#### - the application of metal complexes in medicine.

For example, the use of metal complexes in cancer therapy.

Chemotherapy drugs containing platinum(IV) complexes have been used to treat cancer.

These drugs bind to DNA and inhibit cell division.

Other metal complexes are used as antibiotics.



One major challenge in bioinorganic chemistry is the synthesis of functionalized metal complexes.

Final formulation (50%) – to be sequenced by UTSC

### Tested Text

Lippard, J. J., Minocha, S., Dabholkar, A., and Bertini, I. "Bioinorganic Chemistry", University Science Press  
Bertini, Gray, Lippard and Valentine "Bioinorganic Chemistry", University Science Press

# Academic Integrity

Academic integrity is the cornerstone of our university. It means that you:

- respect the work of others,
- take responsibility for your own work,
- do not cheat or plagiarize,
- do not encourage others to cheat or plagiarize,
- do not allow others to copy your work,
- do not submit work that has been prepared by others as if it were your own.

Academic integrity is one of the cornerstones of the Philosophy of York. It is critically important because it helps to keep the university honest, respectful, and fair. It also helps to ensure that all students have equal opportunities to succeed.

## What is Academic Integrity?

Academic integrity is a set of values and principles that guide us in our work as students, teachers, and researchers.

Academic integrity is based on the belief that all work should be done honestly and ethically. It is also based on the idea that all work should be done with care and respect for others. This means that we should always strive to do our best work, even if it is not perfect. We should also be willing to admit when we have made mistakes and to learn from them. Finally, academic integrity is based on the idea that all work should be done in a way that respects the rights and dignity of all people involved.

## Academic Integrity at York University

Academic integrity at York University is based on the following principles:

- Honesty: We should always tell the truth and never lie.
- Fairness: We should treat everyone fairly and equally.
- Integrity: We should always do what is right and just.
- Responsibility: We should always take responsibility for our actions and decisions.

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