INTRODUCTION TO ANALYTICAL CHEMISTRY

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Analytical Chemistry (MA113)

Semester 1 (Fall Semester)

Lecture 2

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Outline

- What is analytical chemistry
- Relation between analytical chemistry and other branches of science
- Applications of analytical chemistry in medical analysis field
- Flow diagram to perform an analytical procedure

Objectives

- The students will have comprehensive about analytical chemistry
- What are the application of analytical chemistry in medical fields.
- Discussing the best way to perform an analytical method.

What is Analytical Chemistry?

Analytical chemistry is the branch of chemistry that deals with the analysis of matter, both **qualitatively** (What is present?) and **quantitatively** (How much present?).

Environ-mental science

Medicine

Food and beverage industry

Forensic science

Materials science

Pharma-ceutical industry

The relationship between analytical chemistry, other branches of chemistry, and the other sciences.

Analytical Chemistry and Medical Analysis

- Medical analysts are using analytical chemistry techniques to diagnose diseases, track the effectiveness of treatment, and evaluate the health of patients. For instance, the analysis of thyroid hormones for the purpose of diagnosis.

Disease Diagnosis

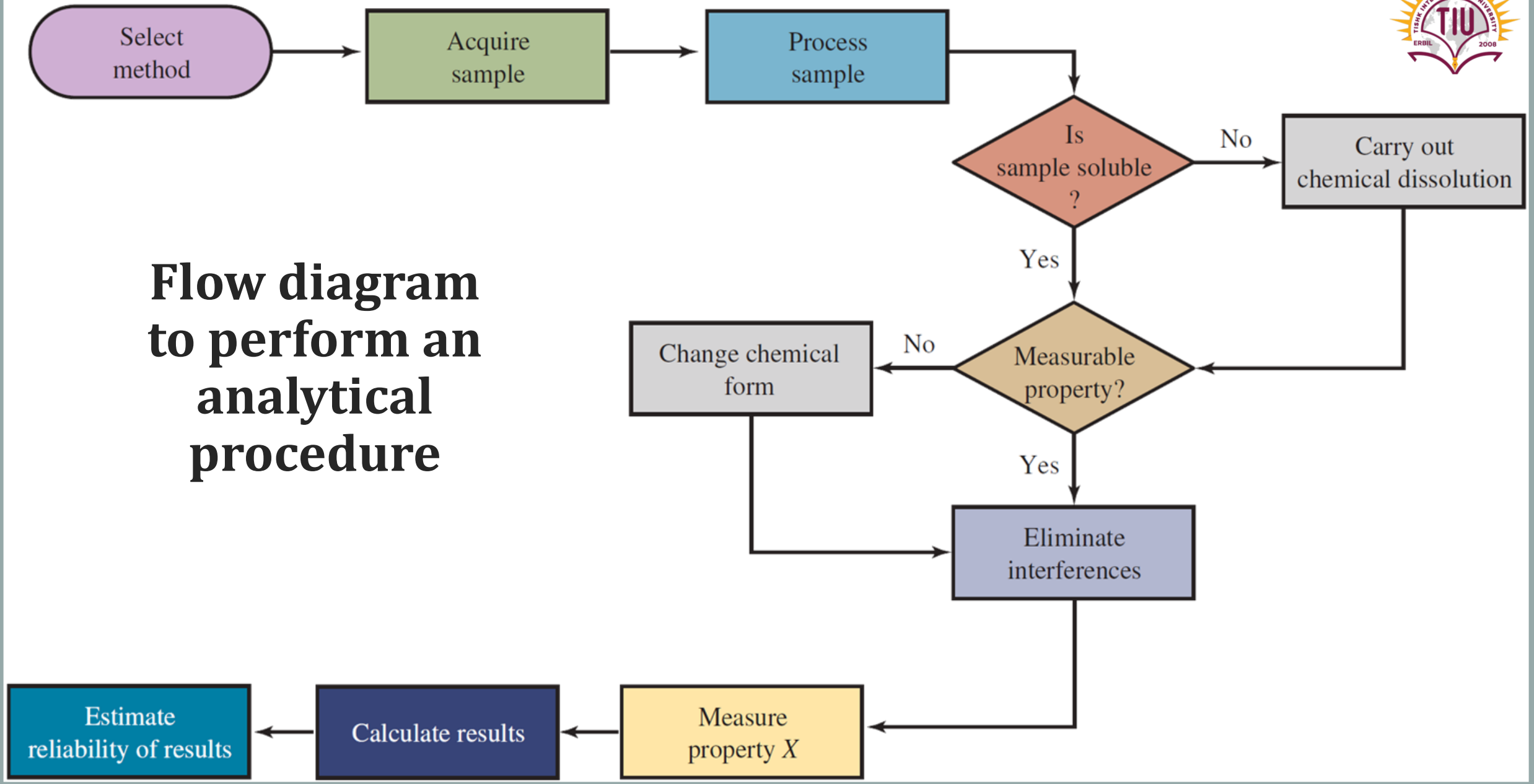
- Medical analysts can collaborate with analytical chemists to create and execute novel diagnostic tests for emerging diseases or specific genetic markers.

Developing techniques

- Analytical chemistry is used to measure drug levels in patients' blood to ensure optimal therapeutic effects and avoid potential toxicity. It also plays a role in analyzing biological samples for drugs or poisons in toxicology

Drug monitoring

Flow diagram to perform an analytical procedure



Reference(s)

- Skoog, D. A., West, D. M., Holler, F. J., and Crouch, S. R. (2022). *Fundamentals of Analytical Chemistry*. 10th Ed. Cengage, Inc. Student Edition ISBN: 9780357450390.

- Clinical and Laboratory Standards Institute (CLSI) Guidelines (https://clsi.org)