Aboubakr Belkaid University of Tlemcen. (2024/2025).
Faculty of Sciences M1, Biomathematics
Mathematics department Technical English 2
Teacher : Mrs. Amel RAHMOUN

Lesson 0: Introduction to the module

Part 1: Why is English essential in science?

Because : "English is the universal language of science."

1. Key Statistics:
    - **Around 80% of global scientific publications are written in English.**
    - **English is the communication language in international conferences and journals.**

In today's academic and professional world, mastering **technical English** is essential, especially in mathematics and related fields. Most research papers, conferences, and collaborations happen in English, making it the global language of science. Understanding technical terminology allows you to read and write research papers effectively, communicate ideas clearly, and collaborate with international experts.

Part 2: How to master technical English?

2. To master technical English, practice is key. Engage with academic papers, attend seminars, and actively participate in discussions. Expanding your vocabulary through specialized texts and exercises will help you become more confident in both written and spoken communication. Regular exposure, combined with practical application, will significantly improve your technical language skills over time.

3. The Four Key Skills to Develop in Technical English

To master **Technical English**, it is essential to work on the four fundamental language skills:

- 📖 **Reading**: Improves comprehension of research papers, textbooks, and technical documents. Regularly reading academic articles helps expand vocabulary and understand formal writing structures.
- 🎧 **Listening**: Enhances the ability to follow lectures, presentations, and discussions. Listening to podcasts, conferences, and scientific talks improves pronunciation and familiarizes you with technical jargon.

- ✍️ **Writing**: Develops the ability to express ideas clearly in reports, research papers, and emails. Practicing structured writing with proper grammar and terminology is crucial for academic and professional success.
- 🗣️ **Speaking**: Strengthens confidence in presenting research, participating in discussions, and networking. Engaging in conversations, explaining concepts aloud, and practicing pronunciation help improve fluency.

4. **Tips to Help Master Technical English**

Read Academic Papers & Textbooks 📖

- Regularly read research articles, textbooks, and journals in your field.
- Pay attention to technical terms, sentence structures, and formal writing styles.

Build a Specialized Vocabulary 📝

- Learn **common phrases** used in academic writing (e.g., "This study investigates...", "The results indicate...").

Practice Writing & Speaking ✍️🗣️

- Summarize research articles in your own words.
- Write short explanations of complex concepts in English.
- Discuss mathematical problems in English with classmates.

Listen to Technical Content 🎧

- Watch lectures, TED Talks, and research presentations in your field.
- Listen to podcasts related to mathematics, statistics, or scientific research.

Engage in Discussions 💬

- Join study groups where you discuss technical topics in English.
- Participate in online forums like ResearchGate.

Use AI & Language Tools 🤖

- Use tools like Grammarly for writing corrections.
- Translate complex phrases but try to **think in English** rather than translating from your native language.

Practice with Past Exam Papers & Exercises 🏆

- Work on problem sets in English to get used to mathematical terminology.
- Take practice quizzes to reinforce your understanding.

Consistency is key! The more you immerse yourself in technical English, the more natural it will become. Keep practicing, and progress will follow! 💡

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Mathematics department Technical English

TD N°0: Quiz, Basics of Scientific English

Questions:

1. **Translate into English :** ***"Les données montrent une augmentation de la probabilité."***
   - **a) "The graph shows a decrease in probability."**
   - **b) "The data show an increase in probability."**
   - **c) "The results show a simulation of probability."**
2. **Complete:** ***"The main objective of the paper is to _____ a new model."***
   - **a) provide**
   - **b) analyze**
   - **c) propose**
3. **Complete the sentence:** ***"The _____ summarizes the key findings of the study."***
   - **a) graph**
   - **b) abstract**
   - **c) introduction**
4. **Translate into English:** ***"Le modèle utilise trois variables principales."***
   - **a) "The model includes three main variables."**
   - **b) "The graph uses three main results."**
   - **c) "The study analyzes three variables."**
5. **Choose the correct translation :** ***"La conclusion propose des perspectives futures."***

- **a) "The introduction discusses future results."**
- **b) "The abstract summarizes future results."**
- **c) "The conclusion suggests future perspectives."**

6. **Fill in the blank:** ***"The _____ of this study is to analyze rainfall patterns."***
   - **a) objective**
   - **b) equation**
   - **c) graph**
7. **Translate into English:** ***"Les résultats sont présentés dans un graphique clair."***
   - **a) "The methods are shown in a clear graph."**
   - **b) "The results are presented in a clear graph."**
   - **c) "The results use a clear analysis."**
8. **Translate into french.**

   - ***"The results of the simulation are shown in the graph."***
   - ***"Numerical simulations show that vaccination significantly reduces the spread of the disease."***

9. **Analyzing a Simplified Abstract**
   Text to Analyze:
   "This paper presents a mathematical model to study the spread of infectious diseases. The model includes three main variables: susceptible, infected, and recovered individuals. Numerical simulations show that vaccination significantly reduces the spread of the disease."

Questions:

1. **What are the three main variables of the model?**
2. **What method is used to analyze the model?**
3. **What is the main conclusion?**

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TD N°0: Quiz Basics of Scientific English

Questions and answers:

1. **Translate into English :** ***"Les données montrent une augmentation de la probabilité."***
   - **a) "The graph shows a decrease in probability."**
   - **b) "The data show an increase in probability."**
   - **c) "The results show a simulation of probability."**

Correct answer : ***b) "The data show an increase in probability."***

2. **Complete:** ***"The main objective of the paper is to _____ a new model."***
   - **a) provide**
   - **b) analyze**
   - **c) propose**

Correct answer : c) propose

3. **Complete the sentence:** ***"The _____ summarizes the key findings of the study."***
   - **a) graph**
   - **b) abstract**
   - **c) introduction**

Correct answer: b) abstract

4. **Translate into English:** ***"Le modèle utilise trois variables principales."***
   - **a) "The model includes three main variables."**
   - **b) "The graph uses three main results."**
   - **c) "The study analyzes three variables."**

Correct answer: a) "The model includes three main variables."

5. **Choose the correct translation:** ***"La conclusion propose des perspectives futures."***
    - **a) "The introduction discusses future results."**
    - **b) "The abstract summarizes future results."**
    - **c) "The conclusion suggests future perspectives."**

Correct answer: c) "The conclusion suggests future perspectives."

6. **Fill in the blank:** ***"The _____ of this study is to analyze rainfall patterns."***
    - **a) objective**
    - **b) equation**
    - **c) graph**

Correct answer: a) objective

7. **Translate into English:** ***"Les résultats sont présentés dans un graphique clair."***
    - **a) "The methods are shown in a clear graph."**
    - **b) "The results are presented in a clear graph."**
    - **c) "The results use a clear analysis."**

Correct answer: b) "The results are presented in a clear graph."

8. **Translate into french:**

- **"The results of the simulation are shown in the graph."**
  Answer:
  « Les résultats de la simulation sont présentés dans le graphique. »
- ***Numerical simulations show that vaccination significantly reduces the spread of the disease."***
  Answer: *Les simulations numériques montrent que la vaccination réduit significativement la propagation de la maladie.*

9. Analyzing a Simplified Abstract

Text to Analyze:
"This paper presents a mathematical model to study the spread of infectious diseases. The model includes three main variables: susceptible, infected, and recovered

individuals. Numerical simulations show that vaccination significantly reduces the spread of the disease."

Questions and Answers:

1. **What are the three main variables of the model?**
   Answer: The three main variables are susceptible, infected, and recovered individuals.

2. **What method is used to analyze the model?**
   Answer: The method used is numerical simulations.

3. **What is the main conclusion?**
   Answer: Vaccination significantly reduces the spread of the disease.