

Advanced STEM Students

Nguyễn Quân Bá Hồng*

Ngày 26 tháng 5 năm 2025

Tóm tắt nội dung

This text is a part of the series *Some Topics in Advanced STEM & Beyond*:

URL: https://nqbh.github.io/advanced_STEM/.

Latest version:

- *Advanced STEM Students*.

PDF: URL: https://github.com/NQBH/advanced_STEM_beyond/blob/main/teach/student/NQBH_student.pdf.

T_EX: URL: https://github.com/NQBH/advanced_STEM_beyond/blob/main/teach/student/NQBH_student.tex.

- .

PDF: URL: [.pdf](#).

T_EX: URL: [.tex](#).

Mục lục

1	UMT Summer Semester 2025/1480: Introduction to Mathematical Analysis	1
1.1	Potential topics for midterm exam	3
2	UMT Summer Semester 2025/1481: Introduction to Mathematical Analysis	3
3	UMT Summer Semester 2025/1387: Combinatorics & Graph Theory	5
3.1	Potential topics for midterm- & final exams	7
4	UMT Summer Semester 2025/1488: Introduction to AI	7
5	UMT Summer Semester 2025/1493: Information Technology Fundamentals 2	8
6	Olympic Tin OLP ICPC	10
7	Miscellaneous	10

1 UMT Summer Semester 2025/1480: Introduction to Mathematical Analysis

1. TRẦN THANH CƯỜNG.

- Absence: -2.
- Early attendance: $0.5 + 0.5$.
- Bonus:

2. HUỖNH LÂM VŨ ĐÌNH.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus:

3. TRƯƠNG CÔNG HOAN.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus:

4. NGUYỄN HUY HOÀNG.

*A scientist- & creative artist wannabe, a mathematics & computer science lecturer of Department of Artificial Intelligence & Data Science (AIDS), School of Technology (SOT), UMT Trường Đại học Quản lý & Công nghệ TP.HCM, Hồ Chí Minh City, Việt Nam.
E-mail: nguyenquanbahong@gmail.com & hong.nguyenquanba@umt.edu.vn. Website: <https://nqbh.github.io/>. GitHub: <https://github.com/NQBH>.

- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $0.25 + 0.5 + 0.5 + 1$.
5. LỮ MINH HOÀNG.
- Absence: -2.
 - Early attendance: 0.5.
 - Bonus:
6. HÀ QUANG HUY.
- Early attendance: $0.5 + 0.5$.
 - Bonus:
7. NGUYỄN BẢO KHÁNH.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $1 + 2 + 1 + 0.5$.
8. NGUYỄN LÊ ĐĂNG KHOA [NLDK].
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ (gift) + $1.5 + 0.25 + 0.5$ (doubles) + 0.5 (prime) + 0.5 (houseboat) + 1 (red black).
9. PHAN GIA LẠC [PGL].
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $0.5 + 0.25 + 0.25 + 0.5$ (doubles) + 0.5 (prime).
10. PHAN PHƯƠNG PHI [PPP].
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $1 + 0.5 + 1 + 0.5 + 0.5$ (prime).
11. ĐẶNG MINH PHƯƠNG.
- Early attendance: $0.5 + 0.5$.
 - Absence: -2.
 - Bonus:
12. NGUYỄN HOÀNG QUÂN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus:
13. ĐƯỜNG NGUYỄN MINH SƠN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus:
14. HẦU TRUNG THÀNH.
- Absence: -2 - 2.
 - Early attendance: 0.5.
15. TẠ MINH THIÊN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus:
16. LÊ NGUYỄN QUỐC TOÀN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus:
17. NGUYỄN HOÀNG NGỌC TRÂN.

- Absence: -2 - 2 - 2.
- Bonus:

18. NGUYỄN ANH TUYẾN.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus:

19. NGUYỄN NHƯ Ý.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: 1.

1.1 Potential topics for midterm exam

1. Cho dãy số $\{u_n\}_{n=1}^{\infty}$. Cho vài giá trị cụ thể của ε , tính N_ε .

2 UMT Summer Semester 2025/1481: Introduction to Mathematical Analysis

1. LÊ MINH TRÂM ANH.

- Early attendance: $0.75 + 0.75 + 0.75$.
- Bonus:

2. NGUYỄN BẢO ANH.

- Early attendance: $0.75 + 0.75$.
- Late: 5 mins.

3. CAO GIA BẢO.

- Absence: -2.
- Early attendance: $0.75 + 0.75 + 0.75$.

4. VŨ VĂN ĐẠT.

- Absence: -2.
- Early attendance: $0.75 + 0.75 + 0.75$.
- Bonus: $1 + 0.5$.

5. TRẦN VĂN HẬU.

- Absence: -2.
- Early attendance: $0.75 + 0.75 + 0.75$.
- Bonus: 1.

6. NGUYỄN NGỌC BÍCH HIỀN.

- Early attendance: $0.75 + 0.75 + 0.75 + 0.75$.
- Bonus: $0.25 + 1 + 1 + 2 + 1$.

7. NGUYỄN VĂN HIẾU.

- Early attendance: $0.75 + 0.75 + 0.75$.

8. DƯƠNG XUÂN HƯNG.

- Early attendance: $0.75 + 0.75 + 0.75$.
- Bonus: $1 + 1$.

9. TRẦN LÊ GIA HUY.

- Early attendance: $0.75 + 0.75 + 0.75$.

10. TRẦN QUANG HUY.

- Absence: -2.

- Early attendance: $0.75 + 0.75$.
11. ĐẶNG PHÚC AN KHANG [DPAK].
- Early attendance: $0.75 + 0.75$.
 - Late: $15 + 52$ mins.
 - Bonus: $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 1 + 0.5$ (virus) + 0.5 (gift) + 0.5 (game) + 0.25 (financial management) + $0.5 + 0.5$ (prime) + 1 (red black) + $1 + 1$ (x^a).
12. LƯƠNG QUỐC KHÁNH.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: $1 + 1 + 1 + 1$.
13. NGUYỄN HÀ ĐĂNG KHOA.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: 1 .
14. NGUYỄN HUY ĐĂNG KHOA.
- Absence: -1 .
 - Early attendance: 0.75 .
15. HUỖNH ĐỖ ĐĂNG KHOA.
- Absence: -2 .
 - Late: 23 mins.
 - Early attendance: 0.75 .
16. TRẦN TRUNG KIÊN.
- Early attendance: $0.75 + 0.75 + 0.75$.
17. NGUYỄN HUỖNH CHÍ LÂM.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: $1 + 0.75 + 1 + 1$.
18. LÊ HOÀNG LINH.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: $1 + 1$.
19. LÂM BẢO NGỌC.
- Absence: -1 .
 - Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: 0.25 .
20. NGUYỄN LƯƠNG NGHĨA.
- Early attendance: $0.75 + 0.75 + 0.75 + 0.75$.
 - Bonus: $0.5 + 1 + 1 + 3 + 1.5 + 1.5$.
21. TRẦN PHÚC NGUYỄN.
- Early attendance: $0.75 + 0.75 + 0.75 + 0.75$.
22. BÙI VĂN NHỚ.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Late: 40 mins.
 - Bonus: $1 + 1 + 1 + 1 + 3 + 0.75$.
23. LÊ THANH TÂN.
- Absence: -1 .

- Early attendance: 0.75.
 - Late: 5 mins.
24. HUỖNH THỊ KIỀU THU.
- Early attendance: $0.75 + 0.75 + 0.75 + 0.75$.
 - Bonus: $1 + 1 + 1$.
25. HOÀNG NGHĨA TÍN.
- Early attendance: $0.75 + 0.75 + 0.75$.
26. HOÀNG ANH TUẤN.
- Absence: -2.
 - Early attendance: $0.75 + 0.75 + 0.75$.
27. NGÔ THANH TÙNG.
- Absence: -2 - 2.
 - Late: 29 mins.
28. NGÔ HOÀNG TÙNG.
- Early attendance: $0.75 + 0.75 + 0.75$.
 - Bonus: $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 1.5 + 0.5 + 0.5$ (virus) + 0.5 (vni) + 0.5 (gift) + 0.5 (game) + 1.
29. TRẦN MỘNG TUYỀN.
- Early attendance: $0.75 + 0.75 + 0.75$.
30. NGUYỄN QUANG VỸ.
- Absence: -1.
 - Early attendance: $0.75 + 0.75$.
 - Bonus: $1.5 + 4 + 1 + 1.5$.

3 UMT Summer Semester 2025/1387: Combinatorics & Graph Theory

1. VÕ NGỌC TRÂM ANH [VNTA].
- Early attendance: $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$.
 - Bonus: $0.75 + 1 + 2 + 1.5 + 0.5 + 0.5 + 0.5$ (Fibonacci + Lucas) + 0.5 (virus) + 2.5 (gen func) + 2 (Euler candy gen func) + 0.5 (houseboat) + 0.5 (prime) + 1 (red black).
2. HOÀNG ANH.
- Early attendance: $0.25 + 0.25 + 0.5 + 0.25$.
 - Bonus: $1.5 + 1 + 0.5 + 1.5$.
3. VÕ HUỖNH THÁI BẢO.
- Early attendance: $0.25 + 0.25 + 0.5 + 0.25 + 0.5$.
 - Late: 7 mins.
 - Bonus:
4. TRẦN MẠNH ĐỨC.
- Early attendance: $0.25 + 0.5 + 0.25 + 0.25$.
 - Bonus: $1.5 + 1 + 1.5$.
 - Late: $18 + 7$ mins.
5. NGUYỄN TRUNG HẬU.
- Absence: -2 - 2.
 - Early attendance: $0.25 + 0.25$.
 - Bonus:

- Late: 24 mins.

6. PHẠM PHƯỚC MINH HIẾU.

- Early attendance: $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$.
- Bonus: 1.

Chấm report Hiếu week 1: B2 Catalan mã O+1 bạn hiếu sai đề: đề kêu chứng minh số cách đặt n dấu (&) đúng là số Catalan C_n , hông phải tính số Catalan số 4 nên +0. bài m số 0 & $n - m$ số 1, làm cách khác tui +1. Prob. 4 CM $|2^{[n]}| = 2^n$: +1. Prob. 5: dùng nguyên lý bao hàm-loại trừ chưa chặt chẽ, bài đó cần lý luận nhiều & khó hơn: +0.25. Prob. 6: +1. Prob. 1: +1. Prob. 2: +1.

Ex1.cpp: +0.5, Ex3: +0.5, Ex5.cpp: +1, Ex6.cpp: +1. Ex7.cpp: +1, Ex8.cpp & Ex9.cpp: +0 (bài toán khó hơn thế vì có thể có nhiều bộ điểm thẳng hàng nên việc mô tả cấu trúc hình học là phần khó chính)

7. HOÀNG QUANG HUY.

- Early attendance: $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$.
- Bonus: $2 + 1.5$.

8. PHAN NGUYỄN DUY KHA.

- Early attendance: $0.25 + 0.25 + 0.25$.
- Bonus: $1.5 + 1 + 1 + 1 + 1.5 + 1.5$.
- Late:

9. ĐẶNG PHÚC AN KHANG.

- Bonus: $0.5 + 1 + 1$.

10. PHẠM MINH KHOA.

- Absence: -2.
- Early attendance: $0.25 + 0.5 + 0.25 + 0.5$.
- Bonus:
- Late:

11. TRẦN THÀNH LỢI.

- Absence: -2 - 2.
- Early attendance: $0.25 + 0.25$.
- Bonus:
- Late: 23 mins.

12. LÊ ĐỨC LONG.

- Early attendance: $0.25 + 0.25 + 0.5 + 0.25 + 0.5$.
- Bonus: $1 + 0.5 + 1 + 1$.

13. LÊ CÔNG HOÀNG PHÚC.

- Early attendance: $0.25 + 0.5 + 0.25 + 0.25$.
- Bonus:
- Late: $24 + 3$ mins.

14. HUỖNH NHẬT QUANG.

- Absence: -2.
- Late: $10 + 20 + 20$ mins.
- Bonus:

15. CAO SỸ SIÊU.

- Early attendance: $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$.
- Bonus: $1 + 1$.

16. SƠN TÂN [ST].

- Early attendance: $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$.
- Bonus: $1 + 1 + 1.5$.
Chấm report Sơn Tân: 0.25 (a) + 0.25 (b) + 0.25 (c) + 0.25 (e) + 0.25 (g, ghi sai mũ) + 0.25 (h) + 1.5 (Pascal, làm được cho $(\sum_{i=1}^m a_i)^n$ nhiều điểm hơn) + 2 (tính C_n^k).

17. NGUYỄN NGỌC THẠCH.

- Early attendance: $0.25 + 0.25 + 0.5$.
- Bonus: $3 + 1 + 1 + 1.5$.
- Late: $5 + 23$ mins.

18. PHAN VINH TIẾN [PVT].

- Late: $8 + 25 + 16$ mins.
- Early attendance: 0.75 .
- Bonus: $2 + 0.5$ (virus).

3.1 Potential topics for midterm- & final exams

- Chứng minh bằng phương pháp quy nạp toán học.
- Bài toán chia kẹo Euler.
- Khai triển nhị thức Newton.
- Sử dụng định lý Euler & thuật toán Havel-Hakimi để chạy tay kiểm tra 1 dãy có phải là graphical sequence hay không. Vẽ đồ thị minh họa.
- Shortest path problem on graph – Bài toán đường đi ngắn nhất.

4 UMT Summer Semester 2025/1488: Introduction to AI

1. HỒ LÊ DUY.

- Absence: -2 .
- Early attendance: $0.5 + 0.5$.

2. TRƯƠNG CÔNG HOAN.

- Early attendance: $0.5 + 0.5 + 0.5$.

3. LŨ MINH HOÀNG.

- Early attendance: $0.5 + 0.5 + 0.5$.

4. ĐINH KIM HƯNG.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: 3 .

5. HUỖNH VÕ QUỐC KHÁNH.

- Absence: $-2 - 2$.
- Early attendance: 0.5 .

6. NGUYỄN NHẬT KHÔI.

- Absence: -2 .
- Early attendance: 0.5 .

7. VÒNG LỖ NÀM PHÚC.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: 1.5 .

8. HẦU TRUNG THÀNH.

- Absence: $-2 - 2$.

- Early attendance: 0.5.

9. NGUYỄN THI.

- Absence: -2 - 2 - 2.

10. DẶNG NGUYỄN DUY TRƯỜNG.

- Early attendance: $0.5 + 0.5 + 0.5$.

5 UMT Summer Semester 2025/1493: Information Technology Fundamentals 2

1. CAO NGUYỄN GIA AN.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $3.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 1 + 1 + 1.5 + 2.5$.

2. HOÀNG TRÂM ANH.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $1 + 2 + 2 + 2.5 + 1.5 + 0.5$.

3. BÙI NGUYỄN MINH DŨNG.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $2.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5$.

4. NGUYỄN NGỌC HÂN.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $0.5 + 1 + 1.5 + 0.5 + 1 + 1 + 1.5$.

5. NGUYỄN THÀNH THÁI HIỆP.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $3 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5$.

6. VŨ NGUYỄN YẾN HOA.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $1 + 2 + 2.5 + 1 + 1.5 + 0.5$.

7. ĐỖ HUY HOÀNG.

- Early attendance: $0.5 + 0.5 + 0.5$.

8. NGUYỄN GIA HUY.

- Absence: -2 - 2 - 2.

9. PHẠM LÂM GIA KHÁNH.

- Absence: -2.
- Late: 15 mins.
- Bonus: 0.5.

10. PHẠM XUÂN KHÁNH.

- Absence: -2.
- Early attendance: 0.5
- Late: 15 mins.
- Bonus: $2 + 1 + 1.5 + 0.5 + 1 + 1.5$.

11. BÙI ĐỨC KHOA.

- Absence: -2.
- Early attendance: $0.5 + 0.5$.

- Bonus: $0.5 + 2$.
12. TRẦN VŨ NGUYỄN KHÔI.
- Early attendance: $0.5 + 0.5$.
 - Late: 20 mins.
 - Bonus: $3 + 2 + 2 + 1 + 1.5 + 1 + 1.5$.
13. VŨ THỊ NGỌC LAN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $2.5 + 2 + 2 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5$.
14. TRẦN VĂN LÊN.
- Early attendance: $0.5 + 0.5 + 0.5$.
 - Bonus: $0.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 1 + 1 + 1.5$.
15. THÁI ANH NHẬT THIÊN LONG.
- Absence: -2 - 2.
 - Early attendance: 0.5.
 - Bonus: $2 + 2 + 2.5$.
16. LÊ NGUYỄN BẢO NGỌC.
- Absence: -2 - 1.
 - Late: 15 mins.
 - Bonus: $1 + 1.5 + 0.5 + 1 + 1.5$.
17. LÊ HỒNG NGỌC.
- Absence: -2 - 1.
 - Early attendance: 0.5.
 - Bonus: $2 + 2.5$.
18. NGUYỄN HỮU NHÂN.
- Absence: -2 - 2.
 - Early attendance: 0.5.
 - Bonus: 0.5.
19. LÂM THIÊN NHÂN.
- Absence: -2.
 - Early attendance: $0.5 + 0.5$.
 - Bonus: $2.5 + 1$.
20. PHẠM MINH NHẬT.
- Absence: -2
 - Early attendance: $0.5 + 0.5$.
 - Bonus: $1.5 + 2 + 2 + 2.5$.
21. PHẠM QUỲNH NHƯ.
- Early attendance: $0.5 + 0.5 + 0.5$.
22. NGUYỄN NGỌC QUỲNH NHƯ.
- Early attendance: $0.5 + 0.5 + 0.5$.
23. ĐOÀN TRƯỞNG THIÊN PHONG.
- Absence: -2.
 - Early attendance: 0.5.

24. HỒ TẤN TÀI.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $1.5 + 2 + 2 + 1 + 0.5 + 1$.

25. HỒ QUỐC THÀNH.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $1 + 1.5 + 1$.

26. NGUYỄN THỊ MINH THƯ.

- Absence: $-2 - 2 - 2$.

27. ĐỖ THỊ HẢI TÌNH.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $2 + 2 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5$.

28. VÕ ĐOÀN THÁI TOÀN.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $0.5 + 2 + 2 + 1 + 0.5 + 1$.

29. TRẦN QUỐC TRUNG.

- Early attendance: $0.5 + 0.5 + 0.5$.
- Bonus: $0.5 + 2 + 2 + 2.5 + 1 + 0.5 + 1.5$.

6 Olympic Tin OLP ICPC

1. ĐỖ ANH KIỆT.

- Bonus: 0.5 (virus).

2. TRẦN QUANG SƠN [TQS]. K3.

- Bonus: $0.5 + 1$ (prime) $+ 1$ (houseboat).

3. PHẠM ĐĂNG HOÀNG THIÊN. K3.

- Bonus: $0.5 + 1$ (houseboat).

7 Miscellaneous