<table>
<tr><td>**Course Keywords</td><td colspan="9">Diffusion Models, Generative Models, Multimodal Learning, Deep Learning, Image Generation, Text Generation, Audio Synthesis, Video Generation, Artificial Intelligence</td></tr>
<tr><td>*1. Goals</td><td colspan="9">4. Understand the conceptual foundations and design principles behind diffusion-based generative models.
5. Explore the application of diffusion models across diverse modalities, including text, images, audio, video, tables, and graphs.
6. Critically analyze and present key research papers in the field of diffusion models.</td></tr>
<tr><td rowspan="2">**2. Reading Materials</td><td>Textbooks</td><td colspan="8"></td></tr>
<tr><td>References</td><td colspan="8"></td></tr>
<tr><td rowspan="3">**3. Course Schedule</td><td>Lecture Method</td><td colspan="8">☐Flipped learning ☐Theory-driven ☑Discussion-oriented ☐Project-based ☐Others</td></tr>
<tr><td colspan="9">Diffusion models have rapidly become one of the most powerful and versatile generative modeling approaches across multiple data modalities. This course introduces diffusion models conceptually and explores their applications in domains ranging from unstructured (e.g., images, audio, text) to structured data (e.g., tables and graphs). Emphasis is placed on understanding key modeling ideas, architectural components, and practical applications through the study of seminal and highly influential papers that have shaped the field.

The course is based on interactive discussions and student presentations. Each week, one team presents a paper over two class sessions and leads the discussion. During the presentation, students should engage in in-depth questions and discussions to fully comprehend the material. Final grades are based on the quality of the presentation and participation in discussions.

Course Contents (Subject to Change)
1. Core Concepts of Diffusion Models
2. Image Generation
3. Text Generation
4. Audio and Speech Synthesis
5. Video Generation
6. Table and Graph Generation
7. Multimodal and Cross-Modal Applications

Important Notes
- Prerequisites: A solid background in deep learning and familiarity with generative models are needed. This course will not cover deep learning fundamentals.
- Course Format: All sessions consist of student presentations and in-depth discussions. There will be no lectures by the instructor.
- Alternative Course Recommendation: Students seeking lectures and hands-on practice on language models and conversational AI are encouraged to take the “Conversational AI” course.
- Enrollment Beyond Capacity: If you wish to register for this course beyond the enrollment cap, please submit your application through the system during the designated period, along with detailed reasons for enrollment.</td></tr>
<tr><td rowspan="5">*4. Evaluation</td><td>Grading Method</td><td colspan="8">Absolute evaluation</td></tr>
<tr><td>Grading Type</td><td colspan="8">A~F</td></tr>
<tr><td colspan="9"><table>
<tr><td>Item</td><td>Attendance</td><td>Assignment</td><td>Midterm</td><td>Final</td><td>Quizzes</td><td>Attitude</td><td>Other</td><td>Total</td></tr>
<tr><td>Rate</td><td></td><td></td><td></td><td></td><td></td><td>100%</td><td></td><td>100%</td></tr>
<tr><td>Note</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Attendance Policy</td><td colspan="8">Students who are absent for more than 1/3 of the class days will receive an “F” or “U” grade.
However, exceptions may be made for students with officially recognized attendance. (Academic Grading Regulations, Guidance on Attendance and Grading for Early Employed Students)</td></tr>
<tr><td>Other</td><td colspan="8"></td></tr>
<tr><td>5. Quota Exceeding</td><td>Capacity</td><td colspan="8"></td></tr>
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Course Registration		
6. Guideline for Students	Prerequisite Courses	
	Requirements	
	Office Hours	
7. Support Services for Students with Disabilities ※ Contents can be modified as needed	For Lectures	○ Visual Impairment: Make textbooks(digital textbook, braille textbook, enlarged textbook etc.), Allow note takers ○ Physical Disability: Make textbooks(digital textbook), Allow note takers and assistants ○ Hearing Impairment: Allow note takers and translators, Allow lecture recording ○ Health Impairment: Excuse absence due to health problems, Allow note takers ○ Learning Disability: Allow note takers ○ Intellectual Disability / Autism Spectrum Disorder: Allow note takers and mentors
	For Assignments & Evaluations	○ Visual Impairment / Physical Disability / Hearing Impairment / Health Impairment / Learning Disability: Extend assignment deadlines, Offer alternate assignment submission and response method, Extend testing period, Offer alternate testing method, Offer different testing room ○ Intellectual Disability / Autism Spectrum Disorder: Offer individualized assignments and alternative evaluations
	Other	Students who take this course can get appropriate level of support service including the support listed above depending on the students' individual characteristics and needs through consultation with professors and the Support Center for Students with Disabilities. If you have any questions concerning support service for students with disabilities you can contact Professor *** (02-880-****) or Support Center for Students with Disabilities (02-880-8787).

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◎ Required fields when uploading syllabus file in mySNU : **