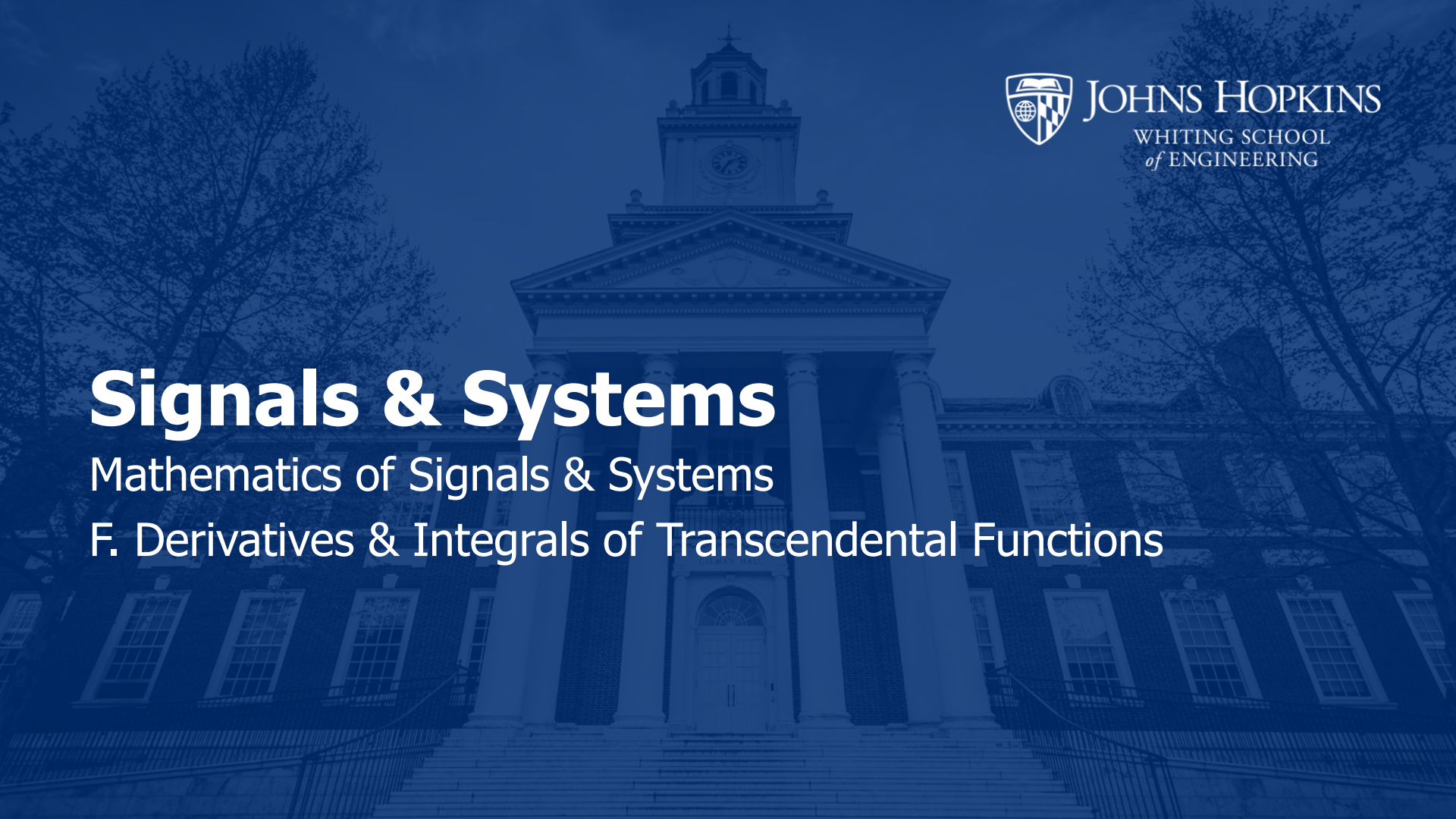

Signals & Systems

Mathematics of Signals & Systems

F. Derivatives & Integrals of Transcendental Functions

Differentiation and Integration of Trigonometric Functions

- Derivatives of sine and cosine functions.

$$\frac{d\ \sin\theta}{d\theta} = \cos\theta \qquad \frac{d\ \cos\theta}{d\theta} = -\sin\theta$$

- Integrals of sine and cosine functions.

$$\int \sin\theta\ \ d\theta = -\cos\theta \qquad \int \cos\theta\ \ d\theta = \sin\theta$$

Differentiation and Integration of Exponential Functions

- Derivative of an exponential function.

$$\frac{d}{dx} e^{ax} = a\, e^{ax}$$

- Integral of an exponential function.

$$\int e^{ax}\, dx = \frac{e^{ax}}{a}$$